

THE INDIAN FIELD

SHIKAR

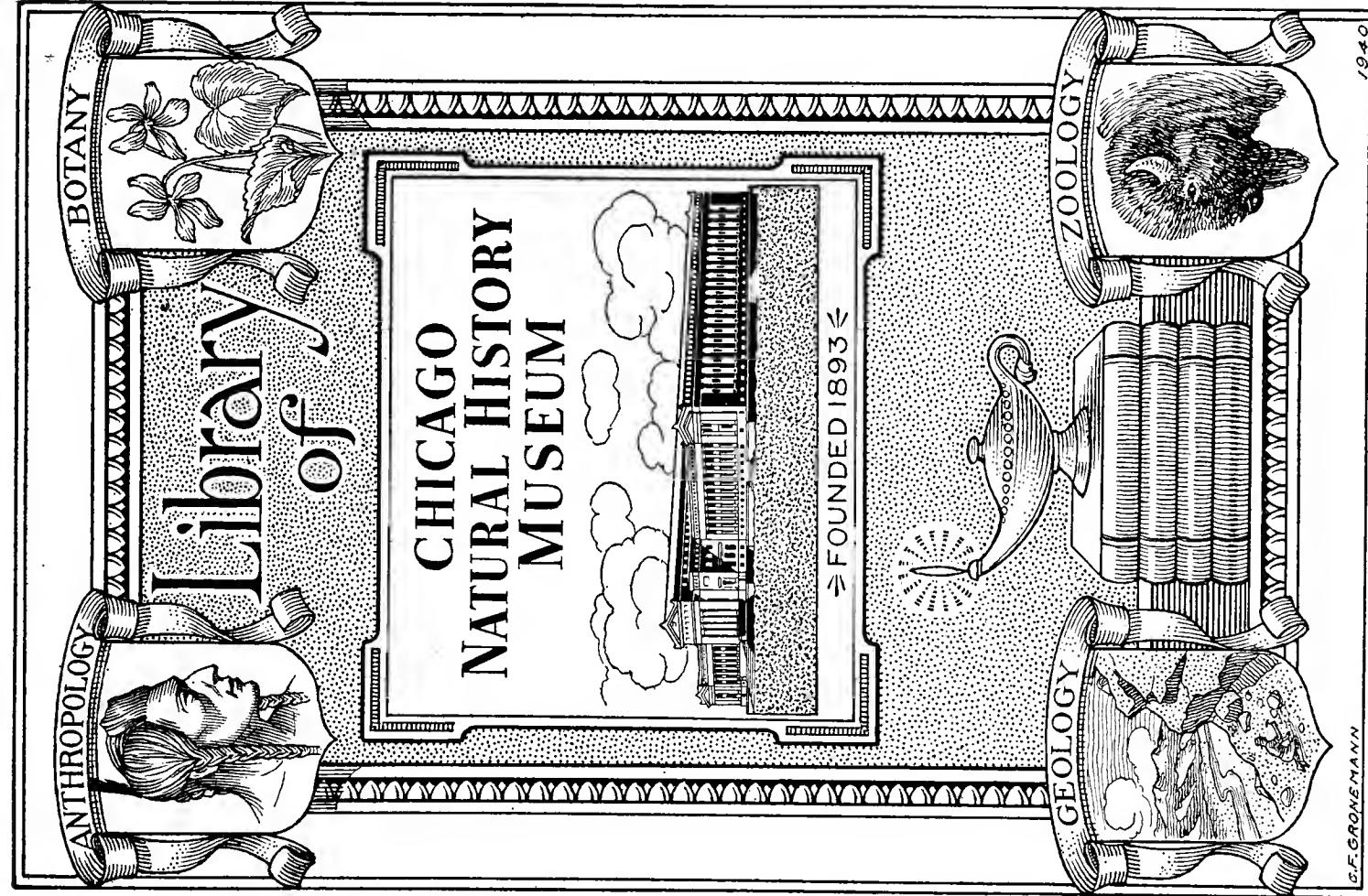
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FOURTH EDITION

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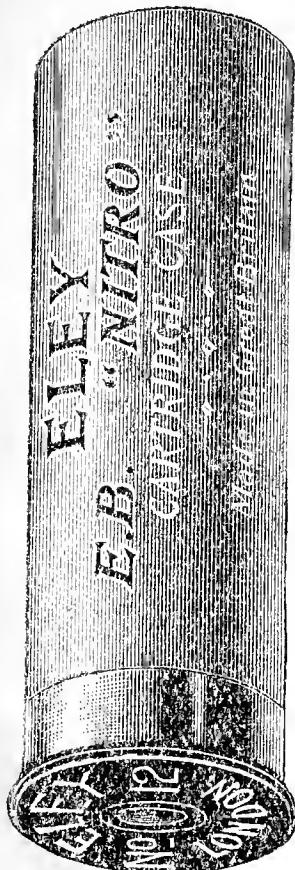




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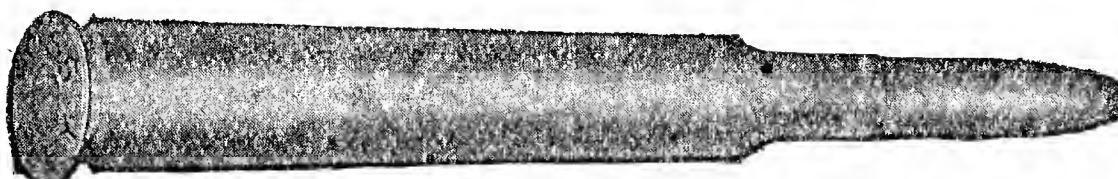
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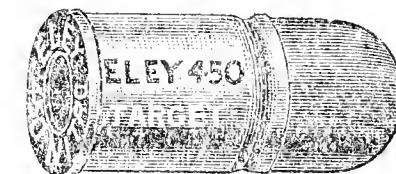
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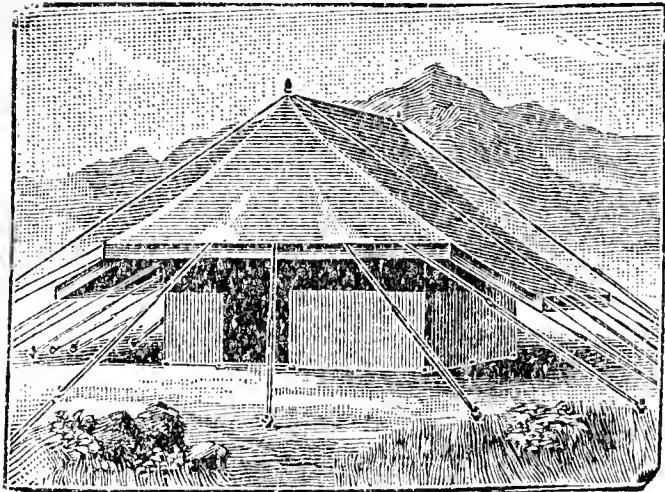
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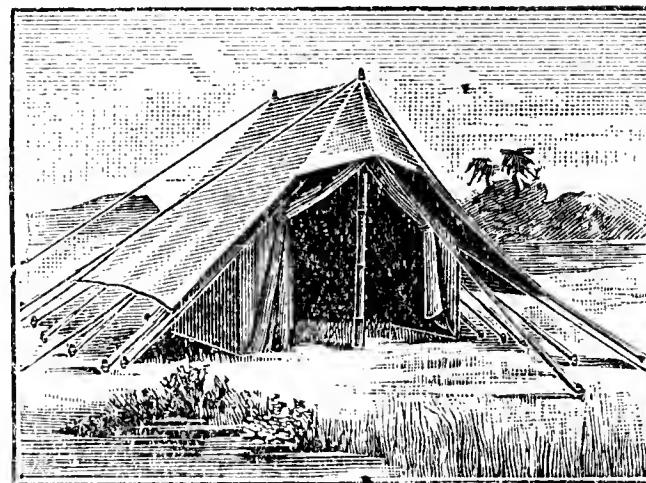
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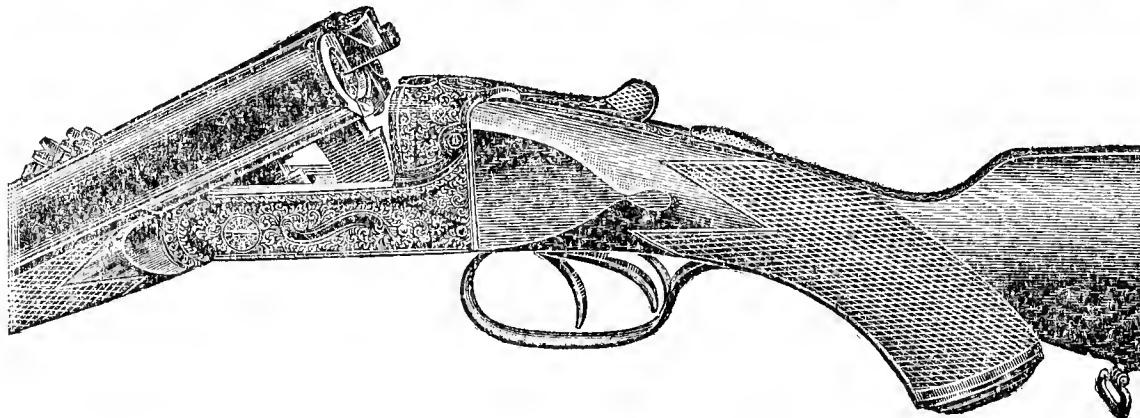
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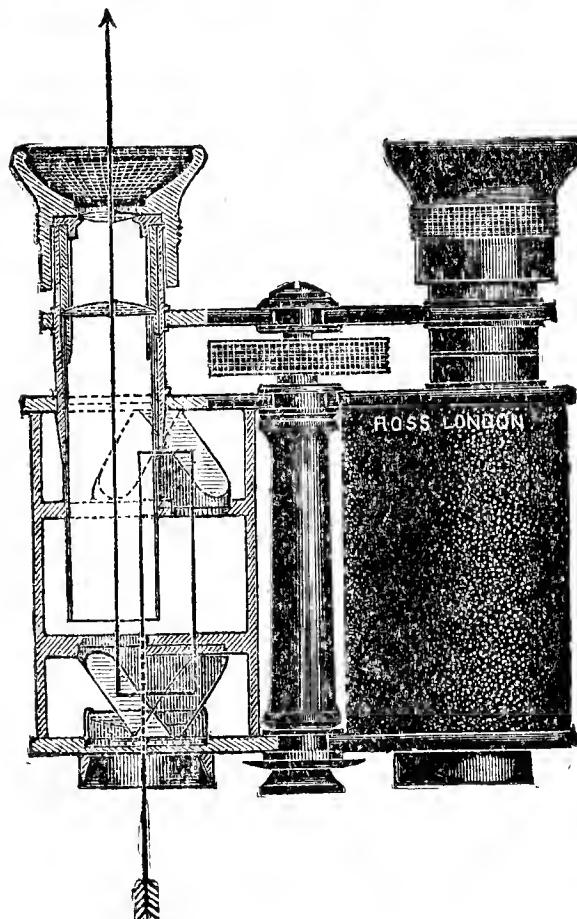
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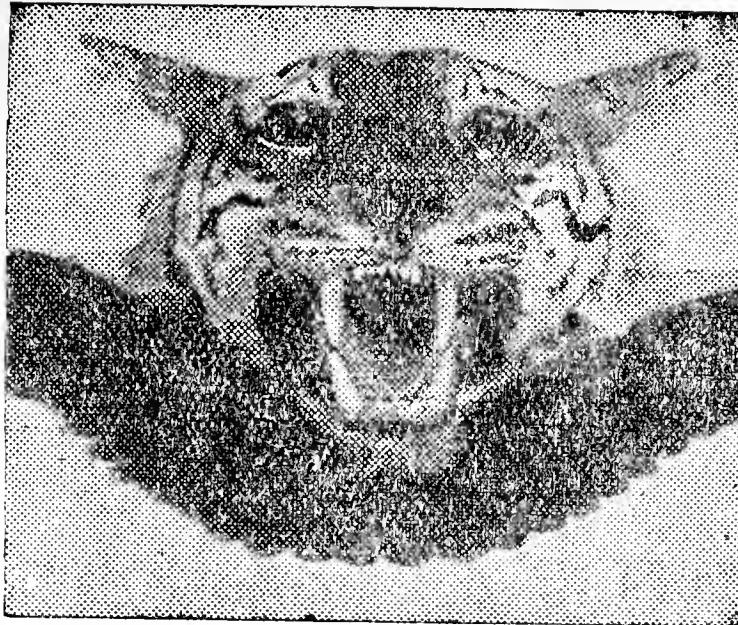
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**W. S. BURKE,**  
EDITOR OF "THE INDIAN FIELD," CALCUTTA.

**FOURTH EDITION.**

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Calcutta :  
"THE INDIAN FIELD" OFFICE.

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## PREFACE.

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CONSTANT queries relating to shikar and kindred matters convince me that the necessity exists for a small cyclopædia compiled with the special object of helping the sportsman to readily identify his game, understand its habits, know when, how, and where to get it, compare his trophies with the records, while having ready to hand much other information of particular use and interest to him. The identification of a single specimen frequently necessitates reference to several standard books on sport and natural history, which means either the possession of a library of expensive volumes or delay in getting enquiries answered. The object of "The Indian Field" Shikar Book is to supply this want by placing in the hands of Indian sportsmen all this information, concisely compiled and arranged for easy reference.

For much of the material contained in the section on Big Game, which has been entirely re-written, I am indebted to the works of Jerdon, Blanford, Forsyth, Sir Samuel Baker, Colonel A. E. Ward, Major Shakespear, Sanderson, "Raoul," Major-General A. A. Kinloch, E. B. Baker, the records of the British, Indian, Madras and other Museums, the *Badminton* Big Game vols., the Journals

of the Bombay Natural History Society, and the columns of *The Asian*, which newspaper I conducted for several years. In respect of the details of trophies I have given the records, quoted my authority and gone to those general sources of information tapped by others who have compiled similar tables. But what I regard as of more value to the present-day sportsman are the numerous measurements of big game shot now-a-days, and which must assuredly be of more interest to the Indian shikari than records of trophies shot several decades ago. For these, I am much indebted to scores of sportsmen who have supplied the details I now publish, and assisted me with valuable suggestions : to one and all, I express my sincere thanks.

In the Game Bird sections, my chief references have been, Jerdon, Hume and Marshall, Blyth, Oates, F. Finn, and E. C. Stuart Baker, and in the Fish section, Day, Beavan and Thomas have been my chief authorities.

I trust the other sections of the book will be found of practical value by those for whom it has been compiled. The Game Regulations are the latest issued and represent the rules governing game preservation and shooting over practically the whole of India. In this edition the Game Registers are bound separately and are carried in the pocket on the back cover : refills can be obtained at the publishers.

W. S. B.

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# BIG GAME.

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## TIGER.

*Felis Tigris.* Native names: *Bagh*, Hind.; *Sher*, North India; *Nahar*, Central India; *Huli*, Southern India; *Koola*, Kurku; *Poolie*, Gond. Cattle-eater, *Ontea Bagh*; Game-eater, *Lodhia Bagh*; Man-eater, *Admi Khor*.

*Habitat*—Throughout India, met with in the Himalayas at 8,000 ft.

*Period of gestation*.—Fourteen or fifteen weeks; cubs mostly born from December to June; seldom more than two cubs at a time are reared, and they stay with their mother till nearly full grown.

*Description*.—Various shades of tawny yellow, striped with transverse black bars, which occupy the sides of the head, neck and body, and are continued to the tail in the form of rings, the last of the series occupying the extremity thereof and giving it a black tip. Under parts of body and inner side of legs almost entirely white.

*Measurements.*--Average length from tip to tip, 9 ft. 6 ins.; the tail usually measures a little less than a third of the total length. The skin of a ten-foot tiger will stretch to twelve feet and over. Tigresses measure from 8 ft. 3 ins. to 8 ft. 9 ins., and seldom tape over 9 feet. The older the animal, the more prominent is the ridge of bone that runs along the top of the brain pan. There are two methods of measurement. In one, the tiger is laid flat on its side and pulled cut so as to lie straight; the tape is then run from the tip of the nose and between the ears to the tip of the tail, closely following the curves of the body: in the other, the tiger is disposed as above, pegs are placed at the nose and tail ends, and the measurement is taken directly between these points.

The most vital spot to aim for in this, and all the carnivora, is just behind the shoulder, if the animal is broadside on; if facing, the aim should be where the neck and shoulder join, or centre of the chest, or if on level ground, and you are kneeling, at the nostril.

A tiger usually kills its own food, but will eat carrion. Tigers are shot from elephants, from *machans* over kills or live bait, usually bullocks picketed near the *machan*, and occasionally on foot; sometimes they are netted or caught in traps.

*Record Measurements.*--From a close study of tiger literature I have no doubt that the existence of the 12-foot tiger (*Felis elongatus* of the sceptic) has

been conclusively proved, and in spite of the discussions of recent years, it appears to me that nothing more remains to be said on this subject. Old time sportsmen, whose veracity cannot be questioned, have vouched for tigers 12 feet and over, and though, for reasons that are obvious to present day sportsmen, the occurrence of these huge felines is now-a-days extremely unlikely, there is no more reason to doubt their former existence than there is to question that of other big game, such as deer, and the great sheep and goats of the Himalayas, which years ago sported trophies infinitely larger than anything the sportsman brings to bag in these days of universal shikar and over-shot grounds.

General Sir C. Reid, K.C.B., records a tiger of 12 ft. 2 ins., the skin of which measured 13 ft. 5 ins. (*Sterndale's Mammalia*). Col. G. Boileau, Col. Ramsay and Mr. C. Shillingford, the famous Purneah tiger slayer, are credited by Sterndale with tigers of 12 feet, while Sir H. Green, Sir J. E. Yule, the Hon. R. Drummond, Col. D. G. Stewart and Col. Shakespeare vouch for tigers 11 ft. and upwards. Col. J. Sherman, Sir E. Bradford, the Hon. Sir H. Ramsay, Sir Joseph Fayrer and Mr. F. B. Simson, ("Judex") and several others whose names were household-words among Indian sportsmen in bygone years, all give particulars of tigers, 10 feet 5 inches and upwards—all measured before the skins were removed. Mr. A. S. Shillingford, writing some years ago in an Indian sporting paper, said concerning big tigers measuring between

11 and 12 feet, (1) The late Sir J. F. Yule, K. C. S. I., R. C. S., states that he has " killed tigers of 11 feet odd inches twice or thrice ; " (2) Colonel George Boileau " killed a tiger at Muteareah in Oudh that was well over 12 feet before the skin was removed, adding that he was of quite an exceptional size, and in his experience of 17 years' constant hunting he had never seen his equal ; " (3) the Hon. J. R. Drummond, late Commissioner of Rohilkund, says, " he never saw a 12-foot tiger, though he shot one of 11 feet 9 inches, measured *as he lay on the ground before being padded* ; " (4) Col. D. G. Stewart says, the largest tiger he ever saw measured 11 feet  $\frac{1}{2}$  inch. " He had personally measured 80 tigers " ; (5) Major-General Sir H. Green, K. C. S. I., C. B., says, " the biggest tiger he ever assisted in killing was one shot near Surat, which was 11 feet 11 inches, measured as it lay, and whose skin when pegged out was 12 feet 4 inches." Sir H. Green shot one himself which measured 10 feet 11 inches. He adds: " I heard by last mail from Claude Clerk at Hyderabad who said he killed to his own gun the biggest tiger he had ever seen, as it measured 11 feet 6 inches before skinning." Sir H. Green concludes by expressing his belief that, " though they must be very rare, tigers of 12 feet and over do exist ; " (6) Mr. C. Shillingford a well known shikari and a personal friend of Sir Joseph Fayrer, one in whose company he had shot a great deal, and whose experience extended over thirty-five years, during which period he shot more than two hundred tigers, says that in 1849 he shot the largest tiger he had

ever seen, and which measured, as he fell, 12 feet 4 inches. This tiger was very old, with short hair and light in colour. Mr. Shillingford shot another of 11 feet 10 inches, and in 1855 one of 11 feet 4 inches. He shot several varying from 10 feet 6 inches to 11 feet; but he adds that "the majority of tigers seldom exceed 10 feet, and many are only 9 feet 8 inches to 9 feet 10 inches;" (7) Mr. Cumming shot "a few over 11 feet; one at Rohinipore of 11 feet 4 inches, one at Kaladearah in 1865 of 11 feet 2 inches, and one at Gour in 1871 of 11 feet 2 inches;" and (8) Sir Charles Reid, K.C.B., informed Sir Joseph Fayrer "that he had shot in the Doon a tiger which measured 12 feet 3 inches *before the skin was removed.*"

To Mr. Moray-Brown's measurements we may add the following half-dozen supplied by Mr. F. A. Shillingford to *The Asian* in August 1890: (1) "On 20th March 1866 my neighbour, the late Mr. Henry Cave of Gondawarah, Purneah, shot a tiger 11 feet, measured on the ground, *where he fell*, and the hunt is described in the *O. S. M.* for July 1868. p. 582." (2) On 13th December 1867, at Bankacote, about four miles from this factory (Kolassy, Purneah) I accounted for a tiger 11 feet, *measured about three hours after death.*" (3) "On the 18th October 1868. my brother, the late Mr. Joe Shillingford, shot a tiger 11 feet." (4) "On the 3rd November 1868. Mr. Joe Shillingford shot the largest of his many large tigers at Biralia Thappa, Tappra, in the Kosi Dearas, measuring 11 feet 5 inches." (5) "On 18th April 1870, the late Mr. W. DeCourcy

shot a tiger 11 feet 1 inch." (6) "On 19th April 1871, Mr. Joe Shillingford shot a tiger 11 feet. The remark in his journal is "huge tiger, skull sent to the Museum."

Turning to "Big Game Shooting" (*Badminton Library*) we find no less than thirty-five tiger measurements between 10 feet and 11 feet 9 ins., recorded by Sterndale and in the columns of the *Asian, Land and Water, etc.* Col. J. T. C. Ross, in a letter to the *Field*, wrote as follows regarding a huge tiger:—

"During Christmas week, 1873, in the Nursingore District, Central Provinces, India, it was my good fortune to kill a tiger, whose footsteps had been noted in the jungles for a year or so as being of rare size."

"The tiger was measured very precisely a few minutes after death by those fine and experienced sportsmen, the late Mr. Le Mesurier, then of the G. I. P. Railway, and Col. C. Plowden, in my presence, and I copy the details as written down at the time."

"Length, 7 ft.  $6\frac{1}{2}$  ins.; tail only, 3 ft. 3 ins.: round forearm,  $19\frac{1}{2}$  ins.; height from centre of pad to tip of shoulder, 3 ft. 6 ins.; girth round body at forehand, 4 ft. 8 ins. The skin, used as a carpet for many years, now measures: to base of tail, 7 ft. 11 ins.; tail, 3 ft. 8 ins.; total, 11 ft. 7 ins.

The 12-ft. tiger which occasioned a big discussion in recent years, was shot in the Jalpaiguri Duars by a lady, Mrs. Laurie Johnson, and the measurement was, if I remember rightly, vouched for by the late Mr. Pughe, I. G. of Railway Police, Col. Evans Gordon and others. In 1897 Mr. P. J. de Launey shot at Comilla a tiger that taped 11 ft.  $1\frac{1}{2}$  ins.; the measurements were attested by several people in the station, and in the *Asian* there appeared full details, together with photographs. When the skin was sent to Calcutta to be dressed, I took the following measurements:—

Length, from tip of nose to tip of tail	...	...	12 feet 6 inches.
Length of tail from root to tip	...	...	3 „ 5 „
Width, under forearm	...	...	5 „ 3 „
Width, across centre of skin	...	...	4 „

It will be seen from the width of this skin that undue stretching lengthways had not been indulged in, and I also convinced myself of this by a very careful examination of the skin.

When I was conducting the *Asian*, H. H. The Maharajah of Cooch Behar favoured me with a list of tigers shot in Cooch Behar, and the Terai adjoining, between 1887 and 1897. From this list I make

the following extracts:—

Total length.		Length of body.		Girth behind should- er.	Biceps.	Fore- arm.	Round head.	Height.	Weight	Length of dry skull.
ft.	in.	ft.	in.	In ches.	In ches.	In ches.	In ches.	In ches.	lbs.	In ches.
10	$\frac{1}{2}$	6	11	54 $\frac{1}{2}$	27 $\frac{1}{2}$	20	38	38	493	...
9	10	6	7 $\frac{1}{2}$	52	26	19 $\frac{1}{5}$	36	39	512	...
10	1	6	11	51 $\frac{1}{4}$	26 $\frac{1}{2}$	20	37	36 $\frac{1}{4}$	496	...
9	8	6	9	52 $\frac{3}{4}$	29	18 $\frac{1}{2}$	38 $\frac{3}{4}$	40 $\frac{1}{2}$	467	...
9	9 $\frac{1}{2}$	6	9 $\frac{1}{4}$	51	28	19 $\frac{1}{4}$	38	38 $\frac{1}{4}$	496	...
9	7	6	7	50 $\frac{1}{2}$	28	18	39	40 $\frac{3}{4}$	492	14 $\frac{3}{4}$
9	8 $\frac{3}{4}$	6	8 $\frac{1}{4}$	54 $\frac{1}{2}$	28 $\frac{3}{4}$	19 $\frac{1}{2}$	36 $\frac{2}{3}$	40 $\frac{1}{4}$	489	14 $\frac{3}{5}$
9	6	6	5	52	29	19	37	38	481	...
9	5 $\frac{3}{4}$	6	6	52 $\frac{1}{2}$	26	19 $\frac{1}{2}$	35	34 $\frac{3}{4}$	477	...
10	0	6	11	48 $\frac{1}{2}$	26 $\frac{1}{2}$	18 $\frac{1}{5}$	36	41 $\frac{1}{2}$	453	...
9	6	6	6	52	29	18 $\frac{1}{4}$	35	42 $\frac{1}{2}$	455	...
9	3	6	3 $\frac{1}{4}$	41	22	16	30	34	360	...
9	3 $\frac{1}{2}$	6	2 $\frac{1}{4}$	41	23	15 $\frac{1}{2}$	29 $\frac{3}{4}$	38 $\frac{1}{2}$	343	...

## BIG TIGERS.

Length.		Skull.	Weight.	Place.	REMARKS.
ft.	in.				
10	4 $\frac{3}{4}$	...	—	S. India ...	Major G. W. Priestley.
10	4	...	...	Mahableshwar ...	Genl. Baya Saheb of Indore
10	4	...	...	Portmound, Nilgiris ...	G. Hadfield. ( <i>Asian</i> ).
10	4	13 x 9	...	Myitkyina ...	W. S. Thom.
10	4	...	...	Nepal .....	J. C. Faunthorpe.
10	3 $\frac{1}{4}$	...	...	Peermaad, S. I. ...	H. T. Deane.
10	3	...	...	Pykara Falls, Nilgiris	G. Hadfield.
10	2	...	...	Rewah, C. P. ...	Col. A. E. Ward.
10	2	...	...	Terai ...	J. C. Faunthorpe.
10	1 $\frac{1}{2}$	...	...	Terai ...	J. C. Faunthorpe.
10	1 $\frac{1}{2}$	...	...	Kumaon ...	Col. A. E. Ward.
9	11	...	...	Kyauktaga, Burma ...	A. Hembrough ( <i>Asian</i> ).
9	10	...	...	Terai ...	S. H. Berkeley.
9	8 $\frac{1}{2}$	...	...	Canara ...	Col. T. Macpherson. ( <i>B. N. H. S. Journal</i> ).
9	8	14 x 9 $\frac{1}{2}$	—	Hyderabad ...	Major R. G. Burton.
9	8	12 $\frac{3}{4}$ x 10	...	Ditto ...	Ditto.

## BIG TIGERS.

Length.		Skull.	Weight.	Place.	REMARKS.
ft.	in.				
9	8	...	...	8,000 ft. alt.	A. P. Davis ( <i>Female.</i> )
9	7	13½ × 8¾	...	Hyderabad	Major R. G. Burton.
9	7	13¾ × 9¾	...	Ditto	Ditto.
9	7	...	...	Bukra Duar	Lieut. W. L. Hogg.
9	7	...	...	N. Cachar	E. C. Stuart Baker, F. z. s.
9	7	...	...	Ditto	Do. (Young tiger with milk)
9	6	14¾ × 9½	...	Hyderabad	Major R. G. Burton. [teeth]
9	3	...	563 lbs.	C. P.	Capt. M. H. Hunter ( <i>Asian.</i> )
9	3	...	448 lbs.	Ditto	Ditto.
9	2	...	420 lbs.	Ditto	Ditto.
9	1	...	..	Sahebgunge	Capt. H. J. Cracknell ( <i>Female.</i> )
9	1	...	513 lbs.	C. P.	Capt. M. H. Hunter ( <i>Asian.</i> )
9	1	...	...	U. P. ...	Lt. C. Shepherd, A. D. C. ( <i>Female.</i> )

## LION.

*Felis Leo.* Native names : *Sher Babbar*, Hind ; *Oontea bagh*, *Savaz*, Guzerat ; *Shingal*, Bengal.

*Habitat.*—Almost extinct in India, a few being still left in the Gir Junagadh Forest, Kathiawar, Mount Abu, and perhaps Oodeypur.

*Period of gestation.*—108 days. Two or three are produced in a litter.

*Description.*—A uniform pale tawny without spots or stripes, black tufted tail, mane usually very scanty. Average length  $8\frac{1}{2}$  to 9 feet,  $3\frac{1}{2}$  feet in height.

Body,  $5\frac{1}{2}$  to  $6\frac{1}{2}$  feet long ; tail,  $2\frac{1}{2}$  to 3 ; mane sometimes 10 inches to a foot long. Average weight about 400 lbs.

Lions are bolder and more noisy than tigers, especially in the evening and at night ; they are nocturnal in their habits and are probably less powerful than tigers. The mane is not developed until after full growth.

*Measurements.*—The largest Indian lion recorded in recent years was one of 9 feet 10 inches, shot by the late Lieut. Percy Hancock. Lieut.-Col. Fenton, in *The Indian Field*, records one he shot in the Gir Forest of 9 feet 5 inches, and in the same locality Lord Harris bagged one of 9 feet 7 inches. In *Sterndale's Mammalia* we find mention of lions from 8 feet 6 inches to 9 feet 6 inches and the old *Delhi Gazette* contains an account of the shooting of a Central India

lion that measured 8 feet 7 inches, tail 2 feet 10 inches, height 3 feet 3 inches and girth 3 feet 10 inches. In the *Oriental Sporting Magazine* of July 1876, there is given a 9 feet 3 inches measurement.

Length.		Place.		REMARKS.
ft.	in.			
9	11	Gir Forest	...	...
9	5	Ditto	...	...

### LEOPARD OR PANTHER.

*Felis Pardus.* Native names: *Cheetah Bagh*, *Chota Bagh*, Hind.; *Tendwa*, *Baghéra*, Northern India; *Lagho Bagh*, Central India; *Tewria*, Kurku; *Cheetar*, or *Beheera*, Gond. *Dipdī*, Guzerat; *Kirab*, Deccan; *Hongya*, *Kirba* and *Ibba*, Canarese; *Chinna-puli*, Mahrathi; *Burkal*, Telegu; *Tahr-hay*, in the Himalayas; *Sik*, Thibet.

*Habitat.*—Throughout India; particularly partial to rocky hills.

Under this head come the Panther, or Pard and the Leopard, which are now recognised as only varieties; also the black panther.

*Period of gestation.*—Fifteen weeks; usually from two to four cubs; breeding time, February and March.

*Description.*—Pale fulvous yellow, belly white with black rings in the form of rosettes all over the body, rings on tail. White markings on the muzzle. Black panthers are by no means uncommon. Extremely stealthy in habit, treacherous and ever watchful, has an extraordinary faculty for concealment, utilizes the most unpromising cover, climbs trees with the greatest ease, and, unlike the tiger, dislikes water, and will not readily swim, though it can do so. Kills its own food, but will eat carrion. Infinitely more audacious than the tiger, it regularly infests villages and mofussil stations, carrying off sheep, goats, dogs, and even poultry, while it frequently attacks human beings, and there are many well authenticated instances of it having turned man-eater.

*Measurements.*—Average length of the larger variety (Panther), 7 feet; of the smaller variety (Leopard), 6 feet 4 inches. The leopard, in fact, ranges from 5 to 8 feet, and the average height at shoulder is about 2 feet. The leopard takes about 3 years to arrive at full growth.

*Record Measurements.*—The largest leopard on record, 8 feet 5½ inches, was bagged by Captain A. G. Arbuthnot at Bandipur, Kashmir, as mentioned in *The Sportsman's Book for India*. H. H. The Maharaja of Cooch-Behar has shot many large specimens, including one of 8 feet 4 inches (*The Asian*) and among the records that follow are four of 8 feet and upwards. Now-a-days anything over 7 feet 6 inches may be considered a big leopard.

Length.	Tail.	Skull.	Height.	Weight.	Place.	REMARKS.
ft. in.	ft. in.	inches.	ft. in.	lbs.		
8 5½	...	...	...	...	Bandipur	Capt. A. G. Arbuthnot, <i>Sportsman's Book for India.</i>
8 3	...	...	...	...	Gurhwal	A. P. Davis.
8 0	...	...	...	...	Panna, C. I.	Lieut. E E. Wakefield.
8 0	...	...	...	...	Terai	J. C. Faunthorpe.
7 11	2 11	...	...	...	Muzaffarnagar	J. C. Faunthorpe.
7 10	...	...	2 11	...	Sinde Vy. Kashmir	D. G. Cockburn.
7 10	...	...	...	...	Bellary	R. R. Lewis, R.A.M.C.
7 10	...	...	...	...	U. P.	Lt. C. Shepherd, 53rd Sikhs.
7 9	...	...	...	...	Belgaum	H. Murray.
7 9	2 11½	10 $\frac{3}{16}$ × 6 $\frac{1}{4}$	...	...	Muzaffarnagar	J. C. Faunthorpe.
7 8	2 5½	...	...	160	Gir Forest	Col. L. L. Fenton (girth 31½ in.)
7 8	...	...	...	...	N. Guzerat	Ditto (girth 35½ in.)
7 7	...	...	...	...	Belgaum	A. S. Fitzgerald.
7 7	...	...	...	...	Nimar, C. P.	Lieut. R. D. Gardner.
7 6	...	...	...	...	Sudra	"M. C." (Asian, 98)
7 5	2 9	11	Girth 32	125	Pubna	C. A. Radice, (Asian).
7 5	...	...	...	...	Ellichpur	Capt. A. I. R. Glasfurd.
7 4	...	...	...	...	Nasik	A. L. Ferguson (Asian)
7 3	...	...	...	140	Nilgiris	H. Norman (Asian.)
7 1½	2 10	...	2 5½	...	Bakra Duar	Lieut. W. L. Hogg.

## THE OUNCE OR SNOW LEOPARD.

*Felis Uncia.* Native names : *Burrhel hay*, Himalayas ; *Iker, Stian*, Thibet ; *Phale*, Lepcha ; *Safaid Cheeta*, Hind ; *Sah*, Bhutan ; *Thurwag*, Kunawar. The "snow leopard" of sportsmen.

*Habitat.*—Throughout the Himalayas, never much below snow level, and found from 9,000 to 18,000 feet.

*Description.*—Pale yellowish grey, head, cheeks and back of neck covered with small dark spots changing to dark rings distributed over the body ; belly yellowish white with dark spots towards the thighs ; black ears with yellow tip ; long bushy tail ringed and spotted ; dense fur and a well-marked short mane. Exceedingly destructive to game, but never attacks man ; should be classed as vermin. It inhabits rocky ground and preys upon the sheep and goats of the herdsmen, and the ibex, markhor, tahr and burrhel ; also upon the marmot, the hare and rodents.

Average length about 7 feet ; head and body, 4 feet ; tail, 3 feet ; height, 2 feet.

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## THE CLOUDED LEOPARD.

*Felis Nebulosa.* Native names : *Pungmar*, Lepcha ; *Kung*, Bhutia ; *Lamchitia*, Nepaul.

*Habitat.*—South-Eastern Himalayas, Sikkim, Bhutan, Assam Hills, Burma, Siam and the Malay Peninsula, at moderate elevations, not above 7,500 ft. It is arboreal in its habits and preys upon birds and small mammals. It is easily tamed.

*Description.*—Ground colour greenish brown, or dull clay brown, pale tawny on lower parts, sometimes almost white, with a double line of small stripes from the ears backwards; irregular clouded patches on the back and sides edged dark and crowded together; smaller patches and spots on the belly and loins; the cheeks and sides of neck black lined; black band across the throat; tail long and bushy with dark rings. Bulky and powerfully built, with very strong claws.

*Measurements* —About 3 ft.; tail, 2 ft. 10 ins.; height about 14 ins.

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### THE MARBLED CAT.

*Felis Marmorata.*—Native names: *Sikmar*, Bhutia; *Dosal*, Lepcha.

*Habitat*—Sikkim and the Eastern Himalayas, Assam, Burma, and the Malay Peninsula.

*Description.*—A shy but fierce animal, though little or nothing is known of its habits; it is probably arboreal, larger than the domestic cat, with thick soft

fur; short rounded ears. Ground colour brownish grey to bright yellow, with paler lower parts. Large irregular dark patches with dark edges on the sides and divided by narrow pale streaks. Angular black blotches on the back arranged in longitudinal bands, chest and inside of limbs banded and spotted, cheeks striped. The under fur is rich brown.

*Measurements.*—2 ft. 6 ins.

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### THE GOLDEN CAT.

*Felis Temmincki* or *Felis aurata*.

*Habitat.*—Same as the Marbled Cat. Its habits are unknown, and it is extremely rare.

*Description.*—Deep chestnut, dark bay along the back, paler on the sides, whitish below. There are the usual cheek stripes of buff, edged with black; round dusky spots on the breast and on the inside of the fore limbs. Ears dark brown or black. Fur brown at the base, chestnut near the end, black tips on the back.

*Measurements.*—Head and body, 31 ins.; tail, 19 ins.; height at shoulder, 17 ins.

## THE FISHING CAT.

*Felis viverrina*. Native names : *Mach Biral*, Beng.; *Bagdasha*, *Khupia Bagh*, Hind.

*Habitat*.—Bengal, Orissa, and throughout the Gangetic plain ; the Southern Malabar Coast, the base of the Western Himalayas and Burma. Is found in marsh land and thickets bordering rivers, swamps and creeks. Is exceedingly savage ; feeds principally on fish and molluscs, occasionally devours snakes, and will even destroy calves, lambs and dogs.

*Description*.—Colour variable from earthy grey with a brownish tinge, to almost dark brown ; paler or almost white below and spotted throughout with black or dark brown elongated spots. Forehead to nape of neck lined, with lines of spots down the back ; cheeks greyish white ; throat and fore neck banded ; markings on limbs variable ; lower parts spotted ; tail ringed.

*Measurements*.—Head and body, 30 ins. ; tail, 11 ins. ; height, 15 ins. ; weight, 17 lbs.

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## THE LEOPARD CAT.

*Felis Begalensis*.—Native names : *Cheeto billee*, Hind. ; *Ban biral*, Beng. ; *Wagati W.I.* ; *Thitkyoung*, Burma.

*Habitat.*—The Himalayas, Bengal, Assam, and Burma, the Western Ghauts and Southern India. It is found in forests and preys on birds and small quadrupeds, and extracts toll from village poultry. Excessively savage and untameable.

*Description.*—Colour very variable ; the ground colour ranges from rufous to grey, under parts white, body covered with elongated well defined spots, partly black and partly brown and variable in size. Black and brown bands over the forehead and down the neck, continued in bands or lines of spots down the back ; tail spotted on the upper surface, the lower surface is usually unspotted. A white band running from inside each eye to the forehead ; two well-marked horizontal cheek stripes, neck and breast striped.

*Measurements.*—Head and body, 24 to 26 ins. ; tail, 11 to 13 ins.

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### THE RUSTY SPOTTED CAT.

*Felis Rubiginosa.* Native name : *Namali pilli*, Madras.

*Habitat.*—Southern India and Ceylon. More tractable than most of the wild cats, and not difficult to tame ; exceedingly active, playful and elegant in its movements.

*Description.*—Ground colour on back and sides reddish grey, below white, body and limbs sparsely spotted with brown ; four black lines run from forehead to past the shoulders, from which they are continued in the form of spots. Cheek stripes and throat bands as usual, tail *rufous* grey and not spotted or striped.

*Measurements.*—Head and body, 16 to 18 ins. ; tail, 9 to 10 ins.

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### PALLAS' CAT.

*Felis Manul.*

*Habitat.*—Thibet and Ladak, Siberia and Mongolia. It lives among rocks and deserts and preys on small animals.

*Description.*—It is about the size of a domestic cat. Fur soft, long and very thick. The skull is remarkably broad for its length. Colour silvery grey to yellowish buff ; brown breast, lower parts white. Indistinct black transverse stripes, narrow and far apart, across the loins ; narrow black rings on tail which is tipped black.

*Measurements.*—Head and body,  $18\frac{3}{4}$  ins. ; tail,  $8\frac{1}{4}$  ins. ; height 9 ins.; weight, 6 to  $7\frac{1}{2}$  lbs.

## THE INDIAN DESERT CAT.

*Felis ornata.*

*Habitat.*—Western India from the Punjab to Nagpore ; rare South of the Nurbudda ; common in Sind and Rajputana. It inhabits sandy plains and sand hills, and is not found in wooded country. Is by no means nocturnal.

*Description.*—Size of a domestic cat, fur short, tapering tail, ears well developed and pointed. Of a very pale sandy ground colour with small black round spots on the body, with smaller elongate spots on the crown and nape, running into longitudinal bands. Lower parts pale rufescent and sparsely spotted black. Tail with small black transverse bands, which form rings towards the end ; black tip.

*Measurements.*—Head and body, 18 to 22 ins. ; tail, 9 to 10 ins. ; height, 9 ins.

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## THE WAVED CAT.

*Felis torquata.*

*Habitat.*—Uncommon, but widely dispersed throughout Northern India. Probably the progenitor of the Indian domestic cats.

*Description.*—About the size of a domestic cat, tapering tail, about half the length of the body and head, ears rounded. In colour ash grey, varying to brown, with lower parts buff. Narrow longitudinal dark bands run along the crown and back. There are interrupted brown or black transverse bands or rows of spots on the sides. Neck has cross-bands; breast and abdomen unspotted. The usual cheek markings are found. Tail has black rings and a black tip.

*Measurements.*—Head and body 20 to 22 ins.; tail, 10 to 12 ins.

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### THE JUNGLE CAT.

*Felis chaus.* Native names: *Jungli Billee*, Hind.; *Ban Biral*, Beng.; *Cheerapuli*, Malabar; *Kyoung-tse-kun*, Burma; *Manjar*, Kurku; *Warcra*, Gond.

*Habitat.*—The common wild cat of India from the Himalayas to Cape Comorin, from 8,000 feet to sea-level. Found in Ceylon and Burma, also the Andaman Islands. It frequents jungles or open country, is partial to grass, reeds, or cultivation cover, infests villages, preys on birds and small mammals, especially partridges, pea-fowl and hares. It is very savage and is generally

untameable. It often breeds with the domestic cat, the litter frequently resembling it in colouring. It breeds twice a year, and has three or four young at a time.

*Description.*—Larger than a domestic cat with long-haired ears and short tail. In colour it varies from sandy grey to brown; dark rufescent back, lower parts much lighter. The limbs are sometimes transversely barred, sometimes not; the inside of the forearm usually has two broad dusky bands. The tail is ringed with black near the end, and the tip is black. In adult specimens there are seldom any markings on the body.

*Measurements.*—Head and body, 22 ins.; tail, 10 to 11 ins.; height at shoulder, 16 ins.; weight, 14 lbs.

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### THE CARACAL.

*Felis Caracal.* Native names : *Siyah-gosh*, Hind. ; *Tsogde*, Thibet : *Ech*, Ladak.

*Habitat.*—Thibet, the Punjab, Sind, U. P. Unknown in Bengal and the Eastern Himalayas. Little is known of its habits. It is said to prey on gazelles, small deer, hares and birds. It is easily tamed, and can be trained to catch the animal on which it preys—a sport, favoured by certain Indian princes.

*Description.*—The colour varies from rufous fawn to brown ; lower parts paler rufous or white with indistinct rufous spots. Tip of the tail sometimes black. Ears black outside, white inside. A white spot below each eye.

*Measurements.*—Head and body, 26 to 30 ins. ; tail, 9 to 10 ins. ; ear, 3 ins. ; height, 16 to 18 ins.

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### THE LYNX.

*Felis Lynx* or *Felis Isabellina*. Native name : *Patsalan*, Kashmir.

*Habitat.*—The Upper Indus Valley, Kashmir, Gilgit, Ladak and Thibet, at heights above 5,000 ft. It is extremely savage, very destructive to sheep, while it preys on all animals and birds it is able to kill. Its keenness of sight and hearing are remarkable. It is an excellent climber and drops on its prey from trees. It has two or three young at a time, the cubs being born blind. Young animals are easily tamed.

*Description.*—The colour is pale grey to reddish fawn. In summer there are small black spots on body, but the winter coats are unspotted save for faint markings on the flanks and limbs.

*Measurements.*—Head and body, 33 to 35 ins. ; tail, 7 to 9 ins. ; weight about 60 lbs.

## THE HUNTING LEOPARD.

*Cynælurus jubatus or Felis jubata.* Native names: *Cheetah, Luggor, Yuz,* Hind. ; *Cheetah Bagh, Kendua Bagh,* Beng. ; *Cheetah-puli,* Tel. *Chircha, Sivungi,* Canarese.

*Habitat.*—Northern India, Punjab, Rajputana, Central India, Central Provinces, and almost up to Bengal.

*Period of gestation.*—Uncertain, probably same as the leopard.

*Description.*—Tawny yellow ground on sides, rufous fawn above, spotted almost over the entire body with round black spots (not rings as in the leopard and not arranged in rosettes). Chin, throat and belly buffy white, unspotted. Short black ears with tawny base and margins. Tail spotted near the root and merging into rings towards the tip, and more than half the length of the head and body. The young are grey and spotted only on the under-fur. Skull high and broad, muzzle short. The claws are semi-retractile. It is about the length of the leopard, but stands higher, and the limbs are longer and more slender. It is easily tamed and used in the chase of antelopes, chiefly the black buck, and it inhabits the low rocky hills surrounding the plains on which antelopes are found.

*Measurements.*—Average height at shoulder, 2 ft. 7 ins. ; average length from head to root of tail, 4 ft. 6 ins. ; average length from tip to tip, 7 ft.

## THE STRIPED HYÆNA.

*Hyæna striata*. Native names : *Lugger Bagha*, *Lakar Bagh*, *Lakra*, *Hondar*, Hind. ; *Renhra*, C. I. ; *Dumulgundu*, Tel. ; *Reddal*, Kurku ; *Dhopetcha*, Gond ; *Jarak*, Kathiawar ; *Taras*, Deccan.

*Habitat*.—Throughout India, rare in forests, common in hilly open country. Abundant in Central and North-Western India ; infrequent in Bengal. It haunts rocky hills and deep ravines, lays up in caves, or in holes dug by itself.

It is nocturnal and usually solitary in its habits. It feeds on carrion and has extremely powerful jaws and teeth. Will occasionally seize sheep, goats or dogs.

Its excreta dries into hard white balls, known as *alba græca*, chiefly composed of fragments of bone, and so indestructible that they have been found fossilized in caves formerly tenanted by extinct animals. The Hyæna is extremely cowardly and rarely attempts to defend itself. It can be tamed, and generally has three or four at a litter.

*Description*.—Dirty grey with narrow transverse tawny or blackish stripes on body and legs. It has a crest or mane, its hind legs are shorter than the fore, are considerably bent, and the hind feet are much smaller than the fore feet.

*Measurements*.—Head and body, 3 ft. 6 ins. ; tail, 1 ft. 6 ins. ; weight, from 60 to 80 lbs.

## THE INDIAN WOLF.

*Canis pallipes* or *canis lupus*. Native names : *Bheriya, Hondar, Bighana*, Hind. ; *Toralu*, Tel. ; *Landga*, Deccan ; *Birghira*, Gond. *Nar*, Kathiawar.

*Habitat*.—Throughout India ; Thibet ; rare in Lower Bengal, rarely found in the Himalayas ; it frequents open plain country, is rare in wooded districts and amongst hills. It is somewhat gregarious, six or eight being the largest packs recorded. It is very silent, sometimes barks, but rarely, if ever, howls. It lives upon mammals, birds, and will carry off children, sheep and goats, and will even attack man. It eats carrion readily, and will even consume vegetable substances ; is chiefly nocturnal and breeds in thickets or holes in the ground. Young wolves are easily tamed. It is extremely cunning and bold, and has both speed and endurance.

*Period of gestation*.—Sixty-three days ; four to nine at a litter are born in spring or early summer.

*Description*.—Fulvous grey with a brown tinge, sometimes mixed with black, on the back. Lower parts dingy white. The young are sooty brown with a white chest spot, which disappears six weeks after birth, when a dark collar appears below the neck, but is lost at maturity. The Thibet and Ladak variety is very pale in colour and woolly in coat and is commonly known as *Canis Laniger*.

*Measurements.*—Head and body, about 3 ft.; tail, 16 to 17 ins.; weight, 40 to 45 lbs A fine specimen, shot by Captain S. H. Charrington, at Muttra, measured 4 feet 6 in. from nose to tip of tail.

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### THE JACKAL.

*Canis aureus.* Native name : *Gidar, Seeal, Pheaow*, Hind.; *Kolea*, Deccan; *Kalla-nari*, Tamil; *Nakka*, Tel.; *Mye-khwe*, Burmese; *Kolial*, Gond.

*Habitat.*—Throughout India, in hills, plains, forests and cities.

*Gestation.*—Sixty-three days ; usually four at a litter.

*Description.*—Rufous inclining to black above, paler below; under fur brown; tail reddish brown with a black tip. The jackal is subject to albinism and melanism and is particularly liable to attacks of rabies.

*Measurements.*—Very variable ; an average male measures 28 ins. head and body ; tail about a foot ; weight from 18 to 22 lbs.

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### THE INDIAN WILD DOG.

*Cyon Dukhunensis*, or *Cuon rutilans*. Native names : *Son-kutta*, (Kashmir.) *Bunkutta*, *Jungli-kutta*, Hind.; *Vatai-karan*, Tamil; *Reza-kutta*, Tel.; *Bhunsa* Himalayas; *Donga-ceeta*, Kurku; *Donga-naik*, Gond.

*Habitat.*—Along the Himalayan forests from Kashmir to Assam and in most of the larger forests of the Peninsula.

*Period of gestation.*—Sixty-three days : it breeds in the winter.

*Description.*—From rusty red to light brownish grey, lower parts paler, dorsal hair with dark tip, light under fur, tail generally black tipped. The young are sooty black throughout. It is absolutely predatory in its habits, and is undoubtedly the most inveterate game destroyer in the country. It hunts in packs, in couples and singly, and will eat carrion and vegetable matter. It is extremely shy of man and usually runs mute. It should always be shot at sight. It is perfectly untameable. Special efforts should be made by Government and sportsmen to reduce the number of these pests, they are most prolific and are extirpating game *all over India*.

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### THE INDIAN FOX.

*Vulpes Bengalensis.* Native names: *Lomri*, *Lom*, *Lokri*, Hind. ; *Khekar*, Behar ; *Khenk Seeal*, Beng. ; *Konkanaka*, Tel. ; *Kakeree*, Gond ; *Quoi-Quoi*, Kurku.

*Habitat.*—Throughout India, except in thick forest. Unknown in Burma.

*Period of gestation.*--Uncertain ; it breeds from February to April, the litter usually numbering four.

*Description.*--It varies a good deal in colour from reddish grey to silver grey ; the back is darker than the sides, the lower parts are whitish, the chin pure white, shading to a creamy hue on the breast, tail shading from rufous grey to a black tip. It preys upon small mammals and birds, reptiles, insects and eggs ; it also eats fruit and grain. Its scent is not strong, and it is not often hunted ; it is very quick, active and graceful, and is easily tamed.

*Measurements.*--Head and body, about 20 ins. ; tail, 13 to 14 ins. ; weight, 6 to 8 lbs.

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### THE BROWN BEAR OR SNOW BEAR.

*Ursus Isabellinus* or *U. Arctus*. Native names : *Lal Bhalu*, Hind. ; *Harput*, Kashmir ; *Drengmo*, Balti ; *Deub*, Nepal ; *Drin-Mor*, Ladak.

*Habitat.*--The Himalayas from Afghanistan to Nepal.

*Period of gestation.*--About six months ; the cubs, usually two, are born in April or May.

*Description.*--From pale to dark brown ; claws pale or white and of moderate length. Fur long, thick and soft with woolly under-fur, the hair on the back

varying from five to eight inches in length. In summer it haunts the grass slopes close to the snow ; in spring and autumn it comes lower down ; it hibernates in winter, re-appearing about March or April. Roots, fruits and seeds, grass and herbs, nuts and grain form its chief diet, though it will eat the flesh of animals it has killed and has been known to feed on carrion. The sight and hearing are dull, but the sense of smell is good. It rarely climbs trees, but can do so, and at a pinch can cover the ground at a good pace. This bear is shy and harmless and rarely attacks, even when wounded.

*Measurements.*—Variable. The males are much larger than the females. Average length from snout to tail somewhat less than 6 ft. ; height at shoulder, 3 feet.

#### GOOD SPECIMENS.

Length. ft.      in.	Place.	REMARKS.
7      8	Kashmir	W. Graham.
7      6	Chumba	G. Wilkinson.
7      5	...	T. W. Houghton.
7      4	Kashmir	Major R. G. Burton.
7      1	Do.	Lt. C. Shepherd, 53rd Sikhs.

## THE HIMALAYAN BLACK BEAR.

*Ursus Torquatus* or *U. Thibetanus*. Native names : *Bhaloo*, *Reech*, Hind. ; *Harput*, Kashmir ; *Hingbong*, Nepal ; *Dom*, Bhutia ; *Sona*, Lepcha ; *Musa-bhurma*, Assam ; *Wek-won*, Burmese.

*Habitat*.—Throughout the Himalayan forests with the frontier of Persia as its western and Assam as its eastern limits.

*Period of gestation*.—Six months. The young, usually two, are born in the spring, and are blind for some time.

*Description*.—Moderate size, hair of medium length, no under-fur, claws short, strong, curved and black, the colour is uniformly black with an inverted white horse-shoe mark on the chest and white on the chin. It subsists chiefly on fruit, grain and roots and honey, and is a good climber. It also kills sheep, goats and deer, and occasionally feeds on carrion. It hibernates partially. It is very savage, and will charge home when wounded ; its sight and hearing are sharp and its powers of scent remarkable ; it covers the ground rapidly, and is an excellent swimmer.

*Measurements*.—From 4 ft. 8 ins. to 5 ft. 5 ins., from nose to rump ; weight, 200 to 300 lbs. Very fat bears have been known to scale up to 450 lbs.

Length.	Girth behind Forearm.		Girth of Forearm.	Place.	REMARKS.
ft.	in.	ft.	in.		
6	7	3	3	.....	Kashmir ... Col. L. J. Fenton.
6	5	3	4	19 $\frac{1}{2}$ in.	Ditto .. Ditto.
6	4	.....		.....	Ditto ... Col. A. E. Ward.
6	0	.....		.....	Ditto ... Ditto.
5	9	3	9	21 in. Weight 450 lbs.	Ditto ... C. Donald.
5	5 $\frac{1}{2}$	.....		.....	..... H. M. Hannay.
5	5	.....		.....	Jhelum ... A. L. Atkinson.
5	4	3	5	17 in. 280 lbs.	Kashmir ... C. Donald.
5	$\frac{1}{2}$	2	11 $\frac{1}{2}$	18 in.	..... Col. L. L. Fenton (female).

### THE SLOTH OR INDIAN BEAR.

*Melursus ursinus*, *Ursus labiatus*. Native names, same as the Himalayan Black Bear: *Bana*, *Kurku*; *Oorjal*, *Yerid* and *Asol*, *Gond*; *Kardi*, *Canara*; *Elugu*, *Telegu*.

*Habitat*.—Throughout the Indian Peninsula, from the base of the Himalayas to Cape Comorin and Ceylon, chiefly in hilly and jungly districts.

*Period of gestation.*—Between six and seven months. The young are born usually in December or January, are generally two in number, and are blind for the first three weeks.

*Description.*—Long and coarse black hair, longest between the shoulders. Muzzle dirty grey; a narrow white horse-shoe mark on the chest. Claws white. It is found solitary or in pairs, or a female with two cubs. It inhabits bush and forest jungles and hills; is particularly partial to caves; is nocturnal in its habits and does not hibernate. It is a clumsy climber and slow in its movements. It feeds almost entirely on fruit, honey and insects, especially white ants. It has great powers of suction and wind propelling from the mouth which enable it to procure the larvæ and ants, of which it is particularly fond. It is also partial to the juice of the toddy palm and is on rare occasions found in a state of intoxication. It has bad eyesight and its hearing is by no means good, but its sense of smell is acute. It is tolerably silent as a rule, but is extremely noisy when wounded. It is timid, but at bay will attack with teeth and claws, paying special attention to the head and face of its foe.

*Measurements*—Head and body, from 4 ft. 6 ins. to 5 ft. 8 ins.; tail, 4 to 5 ins. without hair; height at shoulder, 2 ft. 2 ins. to 2 ft. 9 ins.; weight, from 170 lbs. to nearly 800 lbs.

Length.		Girth.		Place.	REMARKS.
ft.	in.	ft.	in.		
7	1	4	4 $\frac{3}{4}$	Bukra Duar	... Lieut. W. L. Hogg.
6	10	.....	.....	Kas. Bombay	... Lady Jenkins.
6	4	.....	.....	C. P.	... Late G. Creed.
6	2	.....	.....	Kas. Bombay	... Lady Jenkins.
5	4	.....	.....	Berar	... Capt. A. I. R. Glasfurd.
5	0	.....	.....	Chanda	... Lieut. S. H. Charrington.

### THE MALAY BEAR.

*Ursus Malayanus.* Native names : *Wek-won*, Burmese ; *Bruang*, Malay.

*Habitat.*—Chittagong and the Garo Hills, Tenasserim, Arakan and throughout Burma.

*Description.*—Small size. Fur short and coarse ; well curved claws ; very long tongue. In colour black with brownish parts ; muzzle often whitish, crescent patch on chest, white, yellow or orange. Its habits, food and character are practically those of the Indian Bear.

*Measurements.*—Head and body, about 4 ft. ; tail, 2 ins. ; weight, from 60 to 130 lbs.

## THE INDIAN ELEPHANT.

*Elephas Indicus.* Native names : *Hathi, Hathni* (female); *Haust, Kash-mir*; *Arunee*, Southern India; *Mongma*, Garo; *Miyaung*, Cachar; *Tsheng* or *Shanh*, Burma; *Anay*, Canarese; *Gaj*, Beng.

*Habitat.*—In the forest land of the Himalayas from Dehra Dun eastwards, in Assam, in the Western Ghauts, in Mysore and Travancore, and in the forest country between the Ganges and Kistna, and in Burma.

*Period of gestation.*—Nineteen months; they breed in captivity quite freely when permitted opportunities of doing so. The young are generally born in the autumn, a single one as a rule, twins being very rare. The young at birth weighs about 200 lbs., and is about 3 ft. high. An elephant is full grown at 25 years of age, and lives in captivity to a hundred years, and probably half as long again in a wild state.

*Description.*—In colour blackish grey throughout, the forehead, trunk and ears being often mottled flesh colour. It is almost hairless, but has two rows of coarse hairs at the tip of the tail, five toes or hoofs on each fore foot, four on each hind foot. The males are usually tuskers, tuskless males being called *muknas*. The elephant lives in herds varying in number from ten to a hundred. Solitary males and rogues are common, though rogues often belong to a herd. The leader of a herd is invariably a female, and different herds do not mix.

They live chiefly on grass, leaves and shoots of bamboos, wild plantains, small branches, stems and leaves of trees, and a full grown elephant consumes between 600 and 700 lbs. of green fodder per day. They drink twice a day after sunrise and after sunset ; they feed the greater part of the day and night, resting from 9 A.M. to 3 P.M. and from 11 P.M. to 3 A.M. They lie down to sleep. In marching they keep in strict Indian file, they are fond of bathing and wallowing. Their sight and hearing is not acute, but their sense of smell is highly developed. They are incapable of jumping vertically or horizontally ; they can climb very steep places and are excellent swimmers, though their pace is not rapid. They produce a variety of sounds,—a shrill trumpet, a roar, a rumbling growl, a low squeak and make a metallic sound by beating the end of the trunk on the ground while blowing through it ; this they usually do in the presence of tiger. Though individuals are vicious, elephants are timid and inoffensive as a rule. In charging the trunk is tightly coiled, and the head is thrown up, the feet and tusks being used in attacking their adversaries. They are docile and obedient in captivity ; but not so intelligent as is usually imagined.

Elephants are shot, noosed, caught in pits or in kheddahs. To kill an elephant stone dead the brain must be reached and this lies far back in the head, exactly between the orifices of the ears. A facing shot, if standing on same level, should be placed low in the rounded bump or "boss," which is conspicuous on the forehead and just above the trunk. A facing shot with the

animal on a lower level than the hunter must be placed in the concavity just above the "boss." If the animal is standing three-quarter face to the hunter with only one eye visible, the shot must be placed between the eye and the orifice of the ear. If the animal is broadside on, shoot straight into the orifice of the ear. If he be standing with his head three-quarters from you with an eye still visible, shoot behind the ear, when he flaps it forwards, just on a level with the orifice. It is essential to get as close as possible.

*Measurements.*—Twice the circumference of an elephant's foot gives almost exactly the height at the shoulder. Adult males do not as a rule exceed 9 ft., females 8 ft. The tusks vary greatly in length and weight from 8 ft. down to a few inches, and weigh anything up to 150 lbs. a pair.

*Record Measurements.*—That good sportsman, inaccurate observer and eccentric vegetarian faddist, the late G. P. Sanderson, in *Thirteen Years among the Wild Beasts of India*, scouts the idea of a 10 ft. elephant and declares 9 ft. 10 ins. to be the largest he ever saw—and he saw many hundreds. Major-Genl. A. A. Kinloch gives the height of one he shot at 10 ft. 1 in. and in Sterndale's *Mammalia* we have one of 10 ft. 7 ins. which is the alleged height of the famous Bulrampore fighting elephant. At the Bulrampore Zoo there is the *skeleton* of an elephant which tapes exactly 10 ft. 6 ins. at the shoulder. Writing to the *Indian Field* on the 20th October 1907 of a huge tusker shot by

him in the Monywa District, Upper Burma, Capt. G. P. Evans, of the Military Police, states as follows:—

“ Unfortunately I was unable to measure the height of this elephant at the shoulder as when killed he fell in a peculiar position with his forelegs doubled up under him and his right tusk firmly imbedded in the ground. This prevented the carcase from subsiding altogether, as doubtless it would otherwise have done.

“ The girth of the forefeet measured with a steel tape after being cut off is 5'-4" both feet giving the same measurement to within a fraction of an inch. This should make the height of the elephant at the shoulder 10'-8" which seems enormous, but which nevertheless is probably within an inch or two of its actual height. I have never seen a bigger beast. He towered above his fellows and was considerably taller than a rogue killed in this district two years ago which measured 9'-9" at the shoulder.”

I give details of a 10 ft. 5 ins. specimen shot by Lieut. S. H. Charrington, and of one that stood 10 ft. 4 ins. as recorded by Mr. J. N. Clough in *The Asian*.

Lieut. Charrington's measurements give us the following results:—Height, 10 ft. 5 ins.; circumference of foot,  $61\frac{1}{2}$  ins.; tusks, 5 ft. 8 ins. and 5 ft. 6 ins. long and  $14\frac{1}{4}$  ins. girth; weight  $33\frac{1}{2}$  lbs. and  $34\frac{1}{2}$  lbs. respectively; shot in Coorg.

Mr. J. N. Clough, in *The Asian* of 9th May 1896, gives the following measurements of a Burmese tusker shot by him in the Kyaito district.—Height, 10 ft. 4 ins.; right tusk 7 ft. 9 $\frac{1}{2}$  ins., left tusk 8 ft. 6 ins.; girth of right tusk, 1 ft. 5 $\frac{1}{2}$  ins.; ditto left tusk, 1 ft. 5 ins.; circumference of fore foot, 58 ins.; weight of right tusk, 72 lbs; ditto left tusk, 74 lbs.

Mr. E. Pinches, of Jaipur, Assam, shot a gunda 10 ft. 1 in. at Serai Pong, on 27th January 1907 with a foot circumference of 60 $\frac{1}{2}$  ins. with him were Messrs. Tweedie and Beveridge.

Elephants of 9 ft. 7 ins. (Sanderson), 9 ft. 4 ins. (Count Scheibler) have been recorded. Mr. J. E. Jenkins, Burma, sends me the following details of a tusker shot by him.—Height, 8 ft. 10 ins.; tusks 4 ft. 7 ins. each; weight 52 $\frac{1}{2}$  lbs. each.

The longest pair of tusks on record is thus described in the *Journal of the Bombay Natural History Society*.—Length, 9 ft. 10 $\frac{1}{2}$  ins. and 9 ft. 6 ins.; girth 15 $\frac{3}{4}$  ins. and 15 $\frac{1}{2}$  ins.; a very long and slender pair. In the same publication Captain S. S. Flower reports two other pairs.—(1) Length, 8 ft. 3 ins. and 8 ft. 4 ins.; girth, 14 $\frac{1}{2}$  ins. each. (2) Length, 7 ft. 8 $\frac{1}{2}$  ins. and 7 ft. 8 ins.; girth 16 $\frac{3}{4}$  ins. and 16 $\frac{3}{8}$  ins.

Mr. C. S. Rogers, Burma field service, writing from Mogok in 1897, gives the length of a pair found in the Ruby Mines district (together with the remains

of the elephant), as—Right tusk, 6 ft. 2 ins., left, 6 ft. 5 ins.; weight, 67 lbs. and 73 lbs.; girth, 1 ft.  $5\frac{1}{2}$  ins., the pair weighed 140 lbs., and are thus heavier than the heaviest pair recorded by Sanderson in his *Thirteen Years among the Wild Beasts of India*, one of which was 8 ft. and 1 ft. 4 $\frac{1}{2}$  ins. girth, and 90 lbs. weight, and the other, which was diseased and broken, measured only 3 ft. 3 ins. and 1 ft. 8 in. girth, weighing 49 lbs., *vide* pages 62-63.

A pair in the possession of Mr. C. Daley, taken from an elephant shot in Raigarh, measured 6 ft. 7 ins., girth 17 ins., weight 65 lbs. each.

Captain G. P. Evans gives me the following measurements of a rogue elephant that had killed several people in Upper Burma: it is probably the record for Burma in recent years.—Height 9 ft. 9 ins., circumference of fore foot  $58\frac{1}{2}$  ins., diameter 19 ins. Left tusk 4 ft.  $8\frac{1}{2}$  ins., weight, 37 lbs., the right tusk had been eaten away by maggots. Capt. Evans' big tusker, shot in 1907, details of which have already been given, carried a pair of tusks that weighed 99 $\frac{1}{2}$  lbs.—right tusk, 4 ft. 6 ins. long,  $16\frac{1}{2}$  ins. girth, weight  $42\frac{1}{2}$  lbs: left tusk 6 ft. 4 ins. long,  $16\frac{1}{4}$  ins. girth, weight 57 lbs.

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### THE GREAT ONE-HORNED RHINOCEROS.

*Rhinoceros Unicornis or Indicus*. Native names: *Gainra*, Hind.; *Gonda*, Beng.  
*Habitat*.—Assam.

*Period of gestation.*—Seventeen or eighteen months, a single one being produced.

*Description.*—Skin naked, except on the tail and ears. The skin is divided into shields on the shoulders, over the neck, the centre of the body, the rump and the thighs, and is studded with convex tubercles. The colour is blackish grey throughout. The horn is well developed in both sexes. It inhabits grass jungles ; never ascends the hills, has a preference for swampy ground and wallowing. It is quiet and inoffensive, but when wounded or driven will occasionally charge home. It can trot and gallop at a fair speed. The day is passed in sleep, the feeding time being morning and evening. Its principal food is grass. It is very long lived and its flesh is excellent. It is easily killed, and a bullet from any ordinary sporting rifle will drop it dead at once. The spot to aim at, for the neck shot, is about half way along and tolerably high up. The head shot, if successful, is a certainty, the shoulder shot should not be attempted unless with a large bore rifle.

*Measurements.*—Average height at shoulder 5 ft. 9 ins. ; average horn measurement 14 ins. Length from nose to root of tail 10 ft. 6 ins. ; tail 2 ft. 5 ins. ; girth 9 ft. 8 ins.

*Record horn measurements.*—There are only two authenticated records of over twenty inches—one of 24 inches credited to Jerdon and one of a fraction

over 21½ inches shot by Lord Curzon in the Nepal Terai. His Highness of Cooch Behar has shot and been at the shooting of a great many rhino, but his best record is about 16 inches. The horn of the huge specimen in the Indian Museum, Calcutta, is 13 inches. Mr. W. H. R. Doxat gives me the following dimensions of a specimen he got in Assam in 1903 :—Length of horn (front curve) 13 ins. ; circumference at base 21½ ins. ; weight 3 lbs. 2 oz. ; circumference of foot 33 inches.

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### THE SMALLER ONE-HORNED RHINOCEROS.

*Rhinoceros Sondaicus*.—Native names: *Gainra*, Hind.; *Gonda*, Beng.; *Kunda*, Naga; *Kyeng*, Burma.

*Habitat*.—The Sunderbunds, Eastern Bengal, from Assam throughout Burma and the Malay Peninsula.

*Period of gestation*.—Same as *R. Indicus*.

*Description*.—Skin nearly naked, not tubercular, the epidermis is divided by cracks into small scale-like discs. The surface of the body is divided into shields by folds, but the neck folds are only slightly developed. The horn is small and always wanting in the female. Colour, dusky grey throughout. It inhabits tree forests and has been found at considerable elevations in Burma. It is a timid and inoffensive animal.

*Measurements.*—Smaller than *R. Indicus*, and at the shoulder measures from 5 ft. to 5 ft. 6 ins. Mr. A. C. Green, some years ago, shot one in Assam which carried a horn of  $10\frac{3}{4}$  inches ; the horn of the specimen in the Calcutta Zoological Gardens is under 8 inches.

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### THE TWO-HORNED RHINOCEROS.

*Rhinoceros Lasiotis* or *Sumatrensis*. Native name ; *Kyan*, Burma.

*Habitat.*—Occasionally found in Assam ; it ranges to Siam, and is common in Sumatra, Borneo and the Malay Peninsula.

*Period of gestation.*—Nine months.

*Description.*—This is the smallest of the Rhinoceroses and the most hairy, the greater part of the body exhibiting sparse hairs, the ears and tail being the most hairy parts. The horns are slender and curved backwards. The skin is rough and granular ; the folds being less marked than in the one-horned species. In colour it varies from earthy brown to almost black. Its habits are similar to those of the other species ; it inhabits forests and ascends to considerable heights. It is easily tamed even when adult.

*Measurements.*—The average height of adults is a little over 4 ft. and the front horns range from 20 to 30 inches. The best specimen in the British Museum is about 32 inches.

## THE GAUR.

*Bos Gaurus or Gaveus Gaurus*.—Native names : *Gauri Gai*, Hind ; *Gayal*, Orissa ; *Gaur*, Chota Nagpur ; *Khulga*, W. Ghauts ; *Ban Boda*, Central India ; *Karthi*, Mysore ; *Mithun*, Assam ; *Pera-mao*, Gond ; *Gowai*, Kurku ; *Seloi*, Chittagong ; *Pyoung*, Burmese ; *Kad Kona*, Canara. The Indian “Bison” of sportsmen.

*Habitat*.—Nearly all the great hilly forest tracts of India, Assam, Burma and Malay States.

*Period of gestation*.—Uncertain. It breeds in the cold season.

*Description*.—Very massive in form, deep body, small limbs and hoofs, and large ears. A ridge along the back terminates about midway between shoulder and tail. It has thirteen pairs of ribs, the dewlap is almost undefined, the greenish yellow horns are flattened towards the base and curved throughout, the black tips being turned inwards and slightly backwards. Old males are almost black, younger animals are dark brown, young males and females being more rufous, the lower parts are paler, and the legs from above the knees and hocks to the hoofs are white. The muzzle is pale, and the head to the nape of the neck is ashy grey. The Gaur keeps to forest or high grass, but not always near hills ; it is found in herds of from five to thirty, but the finest and oldest bulls are always solitary. They are shy and feed chiefly on grasses, though they

often browse on the shoots and leaves of bamboos, feeding generally in the early morning and evening and lying up during the day and night. They drink in the afternoon. All attempts at domestication have failed, though a few have been more or less tamed I believe.

*Measurements.*—The average height at shoulder is 5 ft. 9 ins.; average horn measurement, 2 ft. 7 ins.; maximum horn measurement,  $41\frac{1}{2}$  inches.

*Record Measurements.*—There are records of some very big Gaur, such as 6 ft.  $10\frac{1}{2}$  ins. (Col. Pollok), 6 ft.  $1\frac{1}{2}$  ins. (Sir W. Elliot, Madras Jour. X. p. 227), and 6 ft. 1 in. girth 9 ft.  $6\frac{1}{2}$  ins. and length 12 ft.  $8\frac{1}{4}$  ins. (Lieut. R. M. Brind.) Sanderson, in his *Thirteen Years among Wild Beasts*, mentions one of 6 ft.

With regard to horns anything over 40 ins. is seldom met with. In the measurements that follow there is one of  $40\frac{1}{4}$  ins. by Mr. H. Murray, Conserv. of Forests, Belgaum, and in *The Asian* we find Mr. F. Ditmas, of the Wynnaad, credited with one or 40 ins. "Mushaboo" in the same paper (12-8-84) mentions a Travancore head of 39 inches and 18 ins. girth. Then there are some big Mysore heads—Mr. Mackenzie's  $77\frac{3}{4}$  ins. tip to tip across forehead; Mr. E. M. Van Ingen's 79 ins., ditto, with a 40 ins. spread; Surg.-Capt. C. H. W. Whitestone's 83 ins., ditto, shot in 1897; and Mr. M. B. Follett's magnificent specimen 87 ins. tip to tip across forehead, 44 ins. sweep, and  $24\frac{1}{2}$  ins. between tips. Messrs. C. K. Martin and A. J. Boger in May 1906, got a specimen that

measured 85 inches—tip to tip across the forehead, the girth of the right horn was  $21\frac{1}{2}$  ins., of the left  $21\frac{5}{8}$  ins.; the animal stood 18 hands. A Travancore sportman tells us that in the possession of H. H. the Maharajah there is a head the right horn of which measures over 43 ins., which equals H. H. of Cooch Behar's best trophy. The best head in the Indian Museum (presented by Sir A. Phayre) is only 32 ins. and 18 ins. circumference.

Length ins.	Girth. ins.	Spread. ins.	Round Sweep. ins.	Tip to tip. ins.	Place.	REMARKS.
$40\frac{1}{2}$	20	.....	.....	.....	Belgaum	H. Murray.
40	$20\frac{1}{2}$	44	.....	23	Wynaad	F. Ditmas ( <i>Asian</i> )
38	19	40	82	16	Myitkyina	W. S. Thom.
$37\frac{1}{2}$ lft. } rt. }	$19\frac{1}{4}$ lft. } rt. }	53	86	...	Assam	E. C. Stuart Baker, F.Z.S.
37	$19\frac{1}{2}$ rt. }	46	...	...	W. Ghats	G. Hadfield.
36	.....	46	...	...	Travancore	H. T. Deane, (Madras Museum.)
36	18	46	...	29	Ditto	Ditto.
36	$22\frac{1}{4}$	42	...	$19\frac{1}{2}$	Cochin	J. D. Watson ( <i>Asian</i> .)
36	20	44	...	22	Travancore	H. T. Deane.
35	$21\frac{1}{2}$	44	...	...	Jalpaiguri	"Shikari" ( <i>Asian</i> .)
34	18	...	...	23	Bilaspur, C. P.	A. M. Leake, v.c.
$33\frac{1}{4}$ rt.	$17\frac{1}{2}$ rt. }	$39\frac{1}{2}$	...	...	S. India	Capt S. H. Charrington.
$32\frac{1}{4}$ lft.	18 lft. }	38 $\frac{1}{2}$	77	$23\frac{3}{4}$		
32	20					

Length.	Girth.	Spread.	Round Sweep.	Tip to tip.	Place.	REMARKS.
Inches.	Inches.	Inches.	Inches.	Inches.		
32	20 $\frac{1}{2}$	32	79	9 $\frac{1}{2}$	S. Madras	Capt. S. H. Charrington.
32	20	38 $\frac{1}{2}$	77	23 $\frac{3}{4}$	S. Madras	Capt. S. H. Charrington.
31 $\frac{1}{2}$ rt.	22 $\frac{3}{4}$ rt. {	47	75 $\frac{1}{2}$	...	Assam	E. C. Stuart Baker, F.Z.S.
31 lft.	22 $\frac{3}{8}$ lft. {	20	27	13 $\frac{1}{8}$	Burma	C. B. Moggridge.
30	17	33	...	...	N. Canara	Major C. M. Priestley.
29 $\frac{1}{2}$	20	30 $\frac{1}{2}$	...	25	Burma	C. B. Moggridge.
29	19 $\frac{1}{4}$	36	...	26 $\frac{1}{2}$	Bengal	Lt. R. M. Brind.
29	17 $\frac{1}{2}$	31	...	24	Burma	C. B. Moggridge.
28 $\frac{1}{2}$	19	39	...	...	Orissa	J. E. Huggins ( <i>Asian</i> )
28 $\frac{1}{2}$	20 $\frac{3}{4}$	34 $\frac{3}{4}$	74 $\frac{1}{2}$	29	U. Burma	Lt. R. B. N. Wood.
28 $\frac{1}{2}$	20	...	...	26	S. Madras	Capt. H. R. Milvain.
27 $\frac{3}{4}$	17 $\frac{1}{2}$	29 $\frac{1}{2}$	...	18 $\frac{3}{4}$	U. Burma	Lt. C. Elliott.
27	19 $\frac{3}{4}$	26	...	17	Ditto	Capt. G. P. Evans.
27	.....	...	...	...	Jagner	Capt. A. Mactavish, 3rd Brahmans.
26 $\frac{1}{2}$	18	31	...	25 $\frac{1}{2}$	Ditto	Lt. C. Elliott.
21 $\frac{1}{2}$ rt.	20 $\frac{3}{4}$ rt. {	56	...	...	Assam	F. Bott.
20 $\frac{3}{8}$ lft.	20 $\frac{1}{2}$ lft. {	20	35	64 $\frac{1}{4}$	Assam	Capt. Humphreys.
.....	19 $\frac{7}{8}$	32 $\frac{1}{2}$	64 $\frac{1}{2}$	30	Assam	Lt. Molesworth.
.....	18 $\frac{3}{4}$	35	69	23 $\frac{1}{2}$	Anamalai Hills	N. L. Sheldon.
.....	17	33	68 $\frac{1}{2}$	29	Assam	Col. Molesworth.

## THE GAYAL OR MITHUN.

*Bos frontalis* or *Gaveus frontalis*. Native names : *Gayal*, Hind.; *Mithun*, *Bunerea-Goru*, Assam and Chittagong; *Sandung*, Manipur; *Buisang*, Naga; *Nanouk*, Burma.

*Habitat*.—Assam and Cachar, Manipur, Tipperah, Chittagong, the Lushai Hills and Burma.

*Period of gestation*.—Probably ten months.

*Description*.—Very similar to the Gaur, but smaller, with shorter limbs, less developed dorsal ridge, a well-marked dewlap, forehead quite flat, horns almost straight, spreading outwards. The colouration is similar to that of the Gaur. Dark brown head and body, legs white or yellowish, horns blackish throughout. It is domesticated in Assam and elsewhere, and in the wild state breeds freely with tame cattle. The tame herds are never employed in agricultural labour or as beasts of burden ; they seem to be reared more as signs of their owner's wealth than anything else. Their milk is drunk by a few, but by most of the natives it is regarded as excreta ; they are not much used for food, though they are sacrificed on ceremonial occasions.

*Measurements*.—In height much less than the Gaur, but it is a heavy and clumsy looking animal compared with *B. Gaurus*, and its horns average 11 ins.

*Record Head.*—Mr. E. Stuart Baker, F.Z.S., who has contributed to the press much interesting and useful matter concerning the Gayal and the Gaur, has some very fine heads as recorded below. His  $22\frac{3}{4}$  ins. specimen is a record, the nearest approach to which is another in his possession— $18\frac{3}{8}$  ins. The British Museum specimen is 15 ins., and that in the Indian Museum, 14 ins. by 14 ins. in girth, presented by Mr. R. W. G. Firth so far back as 1850.

Length. Inches. ...	Girth. Inches. $19\frac{1}{2}$	Tip to tip. Inches. ...	Round Sweep. Inches. $64$	Place. Hinguli (Chittagong) ...	REMARKS. Mr. A. S. A. Smith. This animal taped 8 ft. 7 ins. from base of hoof to top of hump.
$22\frac{3}{4}$ ft. $22$ rt. $18\frac{3}{8}$ ft. $18$ rt.	12	42	58	Assam ...	E. C. Stuart Baker, F.Z.S.
	...	29	$48\frac{1}{4}$	Ditto ...	Ditto.

### THE BANTENG OR TSINE.

*Bos Sondaicus* or *Bos Banteng*. Native names : *Tsaing* or *Hsaing*, Burma ; *Sapi-utan*, Malay.

*Habitat.*—Throughout Burma and the Malay Peninsula, Sumatra, Siam, Borneo and Java.

*Period of gestation.*--Not known.

*Description.*—Very like the Gaur with dorsal ridge smaller and legs longer in proportion; moderate dewlap; the forehead not concave, the head more elongated. The colour in cows and young bulls is bright reddish brown but varies greatly; old bulls are darker, *not* black as is generally asserted; the darkest are rather chocolate with the usual stockings. Two very old bulls are reported by Mr. C. W. Bruce (who has shot over fifty) to have been "light grey with blackish faces." Both sexes have a whitish oval area on the buttocks extending to the root of the tail.

*Measurements.*—About 5 ft, 4 ins. in height at the shoulder; length of body and head 8 ft. 6 ins. and the tail 3 ft.; it sometimes attains the height of seventeen hands in Java. Its habits are the same as those of the Gaur, though it is not such a good climber and seems to prefer the grass plains. It is often domesticated.

*Record Heads.*—“Tsinegalat” in *The Field* gives some measurements of Banteng heads selected from some hundreds hung up in Chin villages, the best being, length 31 ins.; girth 20 ins., tip to tip 21 ins. The best head in the Indian Museum measures 30 ins. by 17 ins. girth and was contribution from the Batavian Society of Java. Anything over 25 ins. is a very good head.

Length.	Girth.	Tip to tip.	Spread.	Height.	Place.	REMARKS.
Ins.	Ins.	Ins.	Ins.	Ft. Ins.		
23	15 $\frac{1}{2}$	29	37 $\frac{1}{2}$	...	Mandalay	H. W. Tarleton (Asian).
30	16	28 $\frac{1}{2}$	35	...	Burma	J. E. F. Jenkins.
29	17	28	37	...	Ditto	Ditto.
29	17	24 $\frac{1}{4}$	33 $\frac{1}{4}$	...	Gangaw, U. Burma	C. B. Moggridge.
28 $\frac{1}{4}$	19	33 $\frac{1}{2}$	37 $\frac{5}{8}$	...	Burma	C. W. A. Bruce.
28	14 $\frac{3}{4}$	27	33 $\frac{1}{2}$	...	U. Burma	C. B. Moggridge.
27 $\frac{1}{2}$	15	28 $\frac{1}{2}$	33 $\frac{3}{4}$	...	Burma	C. W. A. Bruce.
27	16 $\frac{3}{4}$	21 $\frac{1}{4}$	29 $\frac{3}{4}$	...	S. Siam	W. B. Elwes.
27	18	22 $\frac{3}{4}$	31 $\frac{1}{2}$	...	U. Burma	H. P. Evans.
26 $\frac{1}{2}$	17	22	31	...	U. Burma	C. B. Moggridge.
26	16 $\frac{3}{4}$	27 $\frac{1}{2}$	32 $\frac{1}{2}$	...	U. Burma	H. P. Evans.
25 $\frac{3}{4}$	14	24 $\frac{3}{4}$	30 $\frac{1}{4}$	...	Burma	C. W. A. Bruce.
25	14	27	30 $\frac{1}{4}$	...	U. Burma	C. B. Moggridge.
25	16	...	37	5 3	Taungwyndgyi, Burma	Major C. M. Priestley.
24	13 $\frac{1}{2}$	15 $\frac{1}{4}$	25 $\frac{3}{4}$	...	U. Burma	C. B. Moggridge.
24	19 $\frac{3}{4}$	21 $\frac{1}{4}$	28 $\frac{1}{4}$	...	Ditto	Lt. C. Elliot.
23 $\frac{3}{4}$	13 $\frac{1}{4}$	16 $\frac{1}{4}$	25 $\frac{1}{2}$	...	Ditto	Ditto.
23 $\frac{1}{2}$	13	19	27 $\frac{1}{4}$	...	Ditto	C. B. Moggridge.
23	15	19	25	...	S. Siam	G. F. W. Elwes.
22 $\frac{1}{2}$	14 $\frac{1}{2}$	15 $\frac{1}{4}$	24	...	U. Burma	C. B. Moggridge.

## THE YAK.

*Bos Grunniens.* Native names: *Dong, Brong Dong* (wild), *Pegu* (tame), Tibetan; *Yak*, Ladak and N. Kumaon; *Banchour*, Hind.

*Habitat.*—Tibetan plateau at considerable elevations. Within Indian limits the wild Yak is found only in Northern Ladak, especially about Chang Chenmo.

*Period of gestation.*—Ten months, the young are dropped in autumn.

*Description.*—High and massive at the shoulder, the yak slopes away above the hips. Its legs are short and thick; hoofs large and rounded; muzzle and ears small, no dewlap. Hair smooth on upper parts and sides growing to a long, thick, bushy fringe below; a tuft of long hair on the breast; an enormous tufted tail. A long head and flat forehead with smooth, round horns, slightly oval at the base and curving outward and upward. Colour dark brown throughout, with the exception of some white about the muzzle. Old bulls are reddish on the back. It frequents the coldest, wildest and most desolate mountains and ranges higher than any other animal. Bulls are usually solitary, but the cows and young collect in herds. The sense of smell is more acute than the powers of sight and hearing. They are timid, but sometimes charge when wounded.

*Measurements.*—Average height at shoulder 5 ft. 6 ins.; average head 27 ins.; maximum single horn, measurement 40 ins.

*Record Heads.*—The best head recorded is one shot by Mr. A. D. Carey in the Kuen Lun Mountains.—Left horn 40 ins., right 39 ins., and 18·9 ins. at the base. Horns from 29 ins. to 34 ins. are often recorded. The Indian Museum specimen, presented by Capt. E. Smyth in 1862, carries horns of 27 ins. by 17 ins. in girth. General Macintyre in his *Hindu Koh*, mentions a head of 36 ins. by 18 ins. girth, and Col. A. E. Ward, in his *Sportsman's Guide to Kashmir and Ladak*, mentions horns of  $31\frac{1}{2}$  and 30 ins. Col. Kinloch in *Large Game Shooting*, gives "about 36 ins. by 14 ins." as the best he had seen.

Length	Girth.	Place.	REMARKS.		
40 lft. 39 rt. {	18	Kuen Lun Mt.	...	...	A. D. Carey.
33	$16\frac{1}{4}$	N. W. Tibet	...	...	Lieut S. H. Charrington.
32	.....	Ditto	...	...	Capt. J. A. S. Balmain.
$30\frac{1}{2}$	$13\frac{1}{2}$	Chang Chenmo	...	...	"K. O. B." ( <i>Asian.</i> )

## THE BUFFALO.

*Bos bubalus* or *B. Arni*. Native names: *Arni* or *jungli bhains* or *Arni bhainsa*, Hind.; *Bhains*, Beng.; *Gera erumi*, Gond; *Moh*, Assam; *Misip*, Cachar; *Kywai*, Burma.

*Habitat*.—The Brahmaputra and Ganges Churs, Assam, Cooch Behar, Orissa, the Central Provinces, etc.

*Period of gestation*.—Ten months; one or two calves are dropped in summer.

*Description*.—Almost exactly like the tame buffalo, but the horns are much bigger. The colour is almost black, legs sometimes whitish, cows' horns are longer than bulls, but of less girth. Generally found about swamps, hunting the densest grass, jungle or reeds. It loves to wallow, associates in herds, feeds chiefly on grass morning and evening, and lies up during the day in grass or marsh. Not shy, is very bold and savage, frequently attacking without provocation.

*Measurements*.—The average height at shoulder is 6 ft.; average horn measurement, 50 ins. Maximum horn measurement,  $78\frac{1}{2}$  ins.

*Record Heads*.—There is in the British Museum a single horn which measures  $78\frac{1}{2}$  ins. It came from Africa and was figured in the Philosophical Transactions of the Royal Society in 1727. This was proved to belong to a large

Indian Buffalo, and allowing a foot for the forehead, the complete head probably measured from tip to tip over 14 ft. This is bigger than Col. Pollock's specimen which measured 13 ft. 8 ins. and was presented by that sportsman to the Lord Mayor of London. "F.D." (*Asian*, 1-7-84) records 13 ft. 4 ins. along the outside curve (male), and "N.S.K," in the same journal (3-8-80) gives 12 ft. 9 ins. and 34 ins. girth as the dimensions of a fine Assam male. Mr. A. Forbes, c.s., shot one in Assam that taped 12 ft. 1 in., measured by Mr. W. L. Slater, F.Z.S. Undoubtedly the best heads come from Assam. In the British Museum there are several heads carrying horns that range from 53 ins. to 58 ins. (single).

Tip to tip and across forehead.	Girth.	Spread.	Tip to tip.	Max. Span.	Place.	REMARKS.	
						Ft.	Ins.
11 2	20	.....	.....	.....	Assam	...	E. C. Stuart Baker, F.Z.S.
10 $11\frac{1}{4}$	20	$57\frac{1}{2}$	$57\frac{1}{2}$	.....	Assam	...	Major A. F. Mackenzie, (B. N. H. S. Journal Vol. XVII)
10 5	19	56	46	.....	.....	...	Bombay N. H. Socy's Museum.
10 $4\frac{1}{2}$	$20\frac{1}{8}$	66	51	.....	.....	...	A. B. Arbuthnot ( <i>Asian</i> )
10 $2\frac{1}{2}$	$22\frac{7}{8}$	.....	96	8 1	Assam	...	E. C. Stuart Baker, F.Z.S.
.....	.....	.....	.....	.....	.....	...	H. H. Cooch Behar "R.L." ( <i>The Field</i> ) lft. horn 4 ft. 10 ins.

## THE GREAT TIBETAN SHEEP OR NYAN.

*Ovis Hodgsoni*. Native names : *Nyan* (male), *Nyan mo* (female), Ladak ; *Nyang, Hyān*, Tibetan. Erroneously called the "Ammon" by sportsmen.

*Habitat*.—Tibet, Ladak and Sikkim. It is not found south of the main Himalayan axis. In winter it may descend to 12,000 ft., in summer it seldom ranges below 15,000 ft.

*Period of gestation*.—Doubtful, probably about seven months ; the young are born about May or June.

*Description*.—Coarse, short, and very close hair, ears and tail short ; a white ruff in adult males ; a dark crest of hair along the back and withers. Horns of the male very massive, coarsely wrinkled, triangular in section, with rounded edges ; the curve is spiral with the tips turned slightly upwards, and the curve of each horn rather less than a complete circle. Female horns short, erect, thin towards the end, curved backwards and outwards. The colour is greyish brown above, paler and whitish below. In males the rump, throat, chest, belly and insides of the legs are white, and old males are grizzled on the back. Females are maneless, the caudal disc is indistinct, and the white is less pure. The coat is paler in winter than in summer.

The Nyan is the largest known sheep and the most wary of all animals. Every sense is abnormally acute, it is very speedy and, haunting open ground, is exceedingly difficult to stalk and shoot.

*Measurements.*—Average height 48 ins. at shoulder; length from nose to rump, 6. ft. Adult male horns 41 ins. round the curve; basal girth, 16 to 17 ins.; female horns rarely exceed 18 ins.

*Record Heads.*—Anything over 42 ins. is a good head. Heads from 50 ins. to 57 ins. have been recorded; but are evidently never seen now-a-days. There used to be a head in the British Museum which measured 50 ins. by 20 ins.; Baldwin records 43 ins. by 22 ins. as his best; and Genl. A. A. Kinloch declares his largest to be 40 ins. by 17 ins. Writing to *The Asian* (1-12-85) "Thar" testifies to a head  $40\frac{1}{2}$  ins. by  $17\frac{1}{2}$  ins. and "H. M. B." (30-10-91) to one of 46 ins.

Length. Inches.	Girth. Inches.	Tip to tip Inches.	Place.	REMARKS.
48	18	...	Tibet	... ... Mess, 45th Rattray's Sikhs.
$47\frac{1}{2}$	18	...	Ladak	... ... Major Brook Smith.
$47\frac{3}{4}$	18	...	Ditto	... ... Capt. S. B. Paterson.
$47\frac{1}{4}$	$17\frac{1}{4}$	...	Tibet	... ... Capt. O. B. Walker.
44	18	...	Ladak	... ... Capt. F. E. S. Adair.
$42\frac{1}{2}$	$17\frac{1}{2}$	...	Ditto	... ... Officers' Mess, 37th Dogras.
41	$17\frac{1}{2}$	17	Ditto	... ... Capt. F. E. S. Adair.
$37\frac{1}{2}$	18	...	Ditto	...

## THE GREAT PAMIR SHEEP.

*Ovis Poli.* Native names : *Kuchkar* (male), *Mesh* (female), Wakhan.

*Habitat.*—This sheep is found in Indian limits only in Hunza, north of Gilgit, and the Tagdumbash.

*Period of gestation.*—Unknown.

*Description.*—Closely allied to the Nyan, the difference being chiefly in the horns and colour. Its enormous horns are less in girth than in the Nyan, but much longer, each forming a spiral of considerably more than a circle. The female horns are wretchedly small. Its habits and breeding season are the same as those of the Nyan.

*Measurements.*—Adult males 44 ins. at shoulder, length from horns to tip of tail, 5 ft. 2 ins., tail about 4 ins., horns 48 ins., good horns measure from 50 to 60 round the curve and about 15 ins. in basal girth.

*Record Heads.*—Very few Indian sportsmen have shot this sheep ; many of the heads recorded were picked up on the Pamir I believe. "Smoothbore," the late Mr. H. R. P. Carter, writing in an Indian journal on the 13th November 1891, gave Lord Roberts' specimen as the record—length 75 ins., girth 16 ins., tip to tip  $54\frac{1}{2}$  ins. Sterndale mentions a head of 73 ins. by 17 ins. and tip to tip 48 ins. and a fine head got in Hunza by Col. J. Biddulph and presented to

the Indian Museum, measured as follows—Left horn, 68 ins., right horn 67 ins., girth of both 16 ins., tip to tip 52 ins. A Mr. Dauvergne, of Kashmir, had a head of over 70 ins. / The best head obtained by members of the Yarkand Expedition of 1874 was 65 ins. by 16 ins., tip to tip 53 ins. In the Journal of the *Bombay Natural History Society*, Viscount E. de Poncins tells of a 71 in. head, got on the Great Pamir. Very few horns of over 60 ins. are recorded now.

Length.	Girth.	Tip to tip.	Place.	REMARKS.
71	15 $\frac{1}{2}$	53 $\frac{3}{4}$	Great Pamir	Viscount E, de Poncins (B. N. H. S. Journal.)
63	...	...	.....	Col. G. Sullivan.
58 $\frac{1}{2}$	18 $\frac{1}{4}$	44 $\frac{3}{4}$	Hunza	Officers' Mess, 3rd Gurkhas.

## THE OORIAL, SHA, OR SHAPO.

*Ovis vignei* or *Ovis cycloceros*. Native names : *Gach* (male), *Mish* (female), P.; *Shapo* (male), *Shamo* (female), Ladak ; *Dumbh-i-Koh*, Afghan ; *Urin*, Astor ; *Roch*, Baluch. and Sind ; *Oorial*, Punjab.

*Habitat*.—Very wide. It is found in Ladak, in Northern Tibet, Astor and Gilgit, Afghanistan, the Punjab Salt Range, along both banks of the Indus, from Attock downwards as far as Makhad, and in Sind down to sea-level.

*Period of gestation*.—Seven months. The young are produced in early summer, one or two being born. The Shapo breeds freely with tame sheep.

*Description*.—Coarse, close, short hair, short tail. Adult rams have a ruff of long hair from behind the chin down to the chest. The horns, triangular in section are coarsely wrinkled, arise close together, diverge considerably and are curved nearly in a circle. Female horns are nearly straight. In summer this sheep is fawn above, in winter light greyish brown ; lower parts, limbs, buttock and tail whitish ; ruff black with an admixture of white hairs. In old animals the muzzle is white. It inhabits open valleys and grassy undulating ground cut up by ravines. The herds vary from three or four to twenty or thirty ; they are wary and active and are good climbers ; they bleat, but their alarm cry is a shrill whistle.

*Measurements.*—Average height at shoulder 31 ins. Average horn measurement 30 ins., but the more massive specimens seldom exceed 26 ins.

*Record Heads.*—The biggest heads mentioned by any sporting writers are 39½ ins. and 39 ins. Captain Cotton, R.A., gives 38½ ins. as the measurement of a splendid specimen bagged not far from Attock. Heads ranging from 34 to 36 inches have often been recorded. The Indian Museum specimen, from Baluchistan, presented by Mr. E. J. Jones, is 30½ ins. by 10 ins. girth. In *The Sportsman's Guide*, Col. A. E. Ward mentions one which measured 36½ ins. by 11¾ ins. in circumference.

Length.	Girth.	Tip to tip.	Place.	REMARKS.
Inches.	Inches.	Inches.		
39½	12	.....	.....	Mess. 53rd Sikhs.
36½	11½	13	Leh	Capt. S. B. Paterson.
35 rt. 33 lft. {	8³ 8⁴	16	.....	O. H. L. Napier.
34	12	.....	Ladak ...	Officers' Mess, 37th Dogras.
33	11¼	....	Chitral ...	C. Rose.
30½	... ..	....	Baluchistan	Lt. A. S. Fitzgerald.
29	.....	....	Kashmir...	Major P. Lea Birch, R.A.
27½	10½	15½	Baltistan	Capt. S. H. Charrington.
26	10² 4	18	Astor ...	Capt. G. P. Evans.

## THE BURRHEL OR BLUE WILD SHEEP.

*Ovis Nahura* or *Ovis Bhurrel*, *Pseudovis nahoor*. Native names: *Burrhel* (rams *Mendo*), Hind.; *Na*, *Sna*, or *Napu*, Ladak; *Wa*, Sutlej Valley; *Nervati*, Nepal; *Nao*, Bhutan.

*Habitat*.—From Baltistan eastwards; seldom seen below 10,000 ft., in summer from 14,000 ft. upwards.

*Period of gestation*.—160 days. It never breeds with tame sheep. It is easily tamed and breeds freely in captivity.

*Description*.—This animal is as much a goat as a sheep, though it favours the latter genus in external appearance. Hair uniform throughout, no mane or ruff. Short ears and tail. Horns rounded at base and fairly smooth to the tips. In females, the short horns are slightly curved upwards and outwards. In colour brownish grey above, lower parts, belly, inside legs, buttocks, and base of tail white. In males, the face, chest, and sides have black markings, which are wanting in females. It prefers undulating ground, is a splendid climber, and very speedy. It lies down during the day on its feeding ground and never enters bush or scrub. Its colour renders it practically indistinguishable when lying among stones. The flesh is excellent, especially in September.

*Measurements.*—Full grown males average height at shoulder, 35 ins.; average horn measurement, 22 ins.; basal girth, 11 ins.; female horns are considerably smaller in all dimensions.

*Record Heads.*—In bygone days heads of over 30 ins. were occasionally met with, but in the present year of grace a 26 in. head is something to be proud of. Ancient records tell of specimens of 32 ins. In 1884 “Another K. O. B.” sent to an Indian paper details of a head that measured  $30\frac{1}{2}$  ins. and  $27\frac{1}{2}$  ins. left and right horns respectively, and Col. Ward mentions one that was picked up in Ladak and measured 27 ins. Mr. E. R. Neave, c.s. and Mr. A. P. Davis of Gurhwal have secured heads of 25 ins. and upwards. There is a very fine head in the Indian Museum which measures  $28\frac{1}{2}$  ins. by  $10\frac{1}{2}$  ins.

Length. Inches.	Girth. Inches.	Tip to tip. Inches.	Place.	REMARKS.
27	12	...	Ladak	Capt. O. B. Walker.
$26\frac{1}{2}$	11	21	Kumaon	E. R. Neave, c.s.
26	$9\frac{1}{2}$	...	Ladak	Capt. J. A. S. Balmain.

Length. Inches.	Girth. Inches.	Tip to tip. Inches.	Place.		REMARKS.
25 $\frac{3}{4}$	11	22	Kumaon ...	...	E. R. Neave, C.S.
25	12 $\frac{1}{6}$	21 $\frac{7}{8}$	Ditto ...	...	Capt. G. K. Channer.
25	11	...	Gurhwal ...	...	A. P. Davis.
24 $\frac{1}{2}$	11 $\frac{1}{4}$	...	Ditto ...	...	Ditto.
24 $\frac{1}{4}$	11 $\frac{1}{2}$	...	Ditto ...	...	Ditto.
24 $\frac{1}{4}$	11 $\frac{1}{2}$	...	Ladak ...	...	Officers' Mess, 37th Dogras.
23 $\frac{1}{2}$	12	...	Gurhwal ...	...	A. P. Davis.
23	11	26	Ladak ...	...	Capt. S. H. Charrington.
22 $\frac{1}{2}$	11 $\frac{1}{4}$	23	Kumaon ...	...	Capt. M. E. Dopping Hepenstal.
22	11 $\frac{3}{4}$	...	Gurhwal ..	...	A. P. Davis.
21 $\frac{1}{2}$	11 $\frac{3}{4}$	32	Niti Valley	...	Lt. S. H. Charrington.
19 $\frac{1}{2}$	11 $\frac{1}{2}$	27 $\frac{1}{2}$	.....	...	Capt. K. L. W. Mackenzie.
18 $\frac{3}{4}$	12 $\frac{1}{2}$	26	.....	...	Ditto.

## THE PERSIAN WILD GOAT.

*Capra Aegagrus*. Native names : *Ter*, *Sarah*, Sind. The "Sind Ibex" of European sportsmen.

*Habitat*.—This goat is found in Baluchistan and Sind, but not East or North-East of Quetta. It occurs near sea-level, but ascends to 13,000 feet further North. It is probably the principal progenitor of our tame goats.

*Description*.—In colour, brownish grey in winter and lightish grey in summer. Lower and inner parts and buttocks whitish. Old males are paler throughout. The male is bearded on the chin only. The horns of the male are scimitar-shaped, curved backwards, greatly compressed, irregularly notched and jagged, posterior edge rounded. Female horns much smaller, erect, curved slightly backwards, oval in section and ribbed.

It inhabits barren rocky hills in herds, is very active and wonderfully sure footed. The Bezoar, formerly famous in Europe and Persia as an antidote to poison and a cure for many diseases, is a concretion found in the stomach of this goat.

*Measurements*.—Full grown males 37 inches high at the shoulder, from muzzle to tail 5 feet 4 inches. Good horns measure 40 inches round curve

with a basal girth of 7 inches ; average horns 36 inches. The females are less in body and horn measurements.

*Record Heads.*—In Sterndale's *Mammalia*, mention is made on the authority of Mr. J. D. Inverarity, the sporting Bombay barrister, of a  $52\frac{1}{2}$  ins. head, while several ranging from 42 to 48 ins., including the British Museum specimens, have found the light of publicity. Lieut.-Col. L. L. Fenton bagged a male specimen at Kajnag which taped 41 ins. In the Indian Museum the best head is one of  $40\frac{3}{4}$  ins. shot by Col. Sir O. St. John, near Shiraz.

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### THE HIMALAYAN IBEX.

*Capra Sibirica* or *Capra Himalayana*. Native names : *Skin* (male), *Danmo* (female), Ladak and Baluchistan ; *Kail*, Kashmir ; *Targrol*, Kulu ; *Buz*, Kanawar ; *Skin*, Balti.

*Habitat.*—Herat, Kashmir, but not in the Pir Panjal, in the higher Himalayas, Kumaon as far east as Gangotri.

*Period of gestation.*—Unknown, the female has one or two young.

*Description.*—Heavy build and short legs. The male has a profuse chin beard and a ridge of coarse dark hair along the back. The hair is coarse and brittle with an underfur in winter. The scimitar-shaped horns diverge and curve backwards ; they are nearly triangular in section with the posterior edge compressed, the anterior surface having large knots at regular intervals. Female horns much smaller. The colour is brown, old males being chocolate with a white saddle. In winter the colour is lighter. The legs are dark and the beard and tail dark-brown.

It is usually found on broken ground and is not difficult to stalk ; it is excessively wary, but nearly always expects danger from below. Its danger signal is a shrill whistle through the nostrils.

*Measurements.*—Average height at shoulder of adult male about 40 inches ; females a third smaller. Good horns measure 40 to 45 inches ; female horns about a foot.

*Record heads.*—A magnificent trophy described by Blyth ( Proc. Zool. Soc. 1840, p. 80) measured 54 ins. by  $10\frac{1}{2}$  ins. Col. A. E. Ward tells of large pairs 50 by 10 and 49 by 11 inches in his *Sportsmen's Guide*, and there is an old pair in the Indian Museum of  $46\frac{1}{2}$  inches, measured by Mr. W. L. Slater. Col. A. Crookshank shot one at Hundipore, Kashmir, which taped just 46 ins.

Length.	Girth.	Tip to tip.	Place.	REMARKS.
Inches.	Inches.	Inches.		
55	...	...	Ta <sup>g</sup> dumbash	Col. A. E. Ward.
55	10	34 $\frac{1}{2}$	Gilgit	Major B. E. M. Gurdon.
52 $\frac{7}{8}$	10	34	Ditto	Ditto.
51	...	...	Sind Nullah, Kashmir	Col. A. E. Ward.
49	9 $\frac{3}{4}$	36	Baltistan	Capt. J. T. C. Murray.
49	10	19 $\frac{1}{2}$	Ditto.	Ditto.
46 $\frac{1}{2}$	10 $\frac{1}{2}$	...	Leh	Capt. S. B. Paterson.
46	...	...	Kashmir	Major L. E. Kennard.
44 $\frac{1}{2}$	...	...	Baltistan	Lt. C. J. Ratcliff.
43	10 $\frac{1}{4}$	22 $\frac{1}{2}$	Baltistan	Capt. S. H. Charrington.
43 rt. }	11	...	Wakka Nullah, Kashmir	Major P. Lea Birch, R.A.
42 lft. }	...	...	Kashmir	Lt. C. Shepherd, 53rd Sikhs.
42 $\frac{1}{2}$	10	24	Kashmir	Lieut.-Col. C. E. Nichol.
42	9 $\frac{3}{4}$	22	Baltistan	Capt. S. H. Charrington.
41 $\frac{1}{4}$	9 $\frac{3}{4}$	21	Ladak	Officers' Mess, 37th Dogras.
40	11	20	Baltistan	Capt. S. H. Charrington.
37	9 $\frac{1}{2}$	21 $\frac{1}{2}$	Baltistan	Capt. G. P. Evans.
36 $\frac{1}{2}$	9 $\frac{1}{2}$	24	Kulu	Capt. G. K. Channer.
36 $\frac{1}{2}$	8 $\frac{7}{8}$	21 $\frac{3}{4}$	Ditto	Ditto.

## THE MARKHOR.

*Capra falconeri* or *Capra megaceros*. Native names: *Markhor* (Snake-eater), Afghanistan, Punjab and Kashmir; *Rache*, Ladak; *Sara* (male), *Buzkuhi* (female), Balcoch.

*Habitat*.—The Pir Panjal ranges, south of Kashmir, Baltistan, Astor, Gilgit, Hazara, Afghanistan, the Suleiman range, Bannu District, and Chehiltan, near Quetta.

*Period of gestation*.—Uncertain ; one or two are produced at a birth in May and June.

*Description*.—In old males a long and copious beard down to the breast ; in young males and females only on the chin. No species varies so much in horn formation as the Markhor. There are four well recognisable varieties :—(i) *the Astor*, in which the massive horns form a very open spiral, never exceeding one and a half turns ; (ii) *the Pir Panjal*, in which the spiral is less open, the horns having from one to two turns ; (iii) *the Cabul*, in which the horns are nearly straight, having a slight spiral ; (iv) *the Suleiman*, in which the horns are absolutely straight and conical, with two keels wound spirally round after the manner of a barley sugar stick, good horns having two or three complete turns.

The colour in summer is a rich reddish brown, grey in winter, long hair, beard black in front, whitish behind.

The Markhor is the grandest of all wild goats, extremely agile and a magnificent climber. It usually occurs in herds and frequents stony ravines and steep hill-sides.

*Measurements.*—About 38 inches at the shoulder, and 55 from the horns to the root of the tail. The horns vary in length in different varieties. Good horns of the Aster and Pir Panjal variety run from 45 to 50 inches round the curve and 36 inches straight from base to tip ; of the Cabul variety 44—48 round front curve ; in the Suleiman variety 49 round the curve and 36 inches straight from base to tip.

*Record Heads.*—The Badminton Library (Big Game Shooting) gives 63 ins. as the record for the Pir Panjal variety and Col. Ward in his *Sportsman's Guide* gives 63, 61, 59, 56, etc. In the Lucknow Museum there are 60 and 59 inch heads, and in the details we give further on there is a  $59\frac{3}{4}$  inch head (Pir Panjal variety) shot by Major Roos Keppel. "Constant Reader" (Asian, 14-9-80) mentions a 60 inch head brought by Hutton from Cabul ; Capt. Barnes of the Xth Bengal Lancers shot a Pir Panjal markhor with  $59\frac{1}{2}$  inch horns. Lord Lansdown has a  $58\frac{1}{2}$  inch head got in Gilgit. Many heads of over 45 inches have been recorded by Himalayan sportsmen, the largest shot by Genl.

Kinloch was  $47\frac{1}{2}$  inches. All these measurements refer to the Astor or Pir Panjal variety. In the Cabul or Suleiman variety the record is  $48\frac{1}{2}$  inches, an odd horn in the collection of the British Museum. Then there is Major Fitz Herbert's 48 inches specimen recorded in the *Badminton Big Game Shooting*. An average good head for each variety is 40 inches.

Length. Inches.	Girth Inches.	Tip to tip. Inches.	Spread. Inches.	Place.	REMARKS.
59 $\frac{3}{4}$	12	80 $\frac{1}{2}$	...	Para Chinar	Major Roos Keppel (Pir Panjal var.)
56	11 $\frac{1}{2}$	32	...	Chitral	C. Rose, (Pir Panjal var.)
55	11	38 $\frac{1}{4}$	41 $\frac{1}{4}$	Gilgit	Officers' Mess, 3rd Gurkhas (Pir Panjal var.)
53	...	...	...	Ditto	Major B. E. M. Gurdon, Ditto,
52 $\frac{3}{4}$	...	...	...	Chitral	Lieut. F. W A. Wells.
51	10 $\frac{1}{2}$	41	...	Kajnag	Capt. G H. Davis.
50	12	...	...	Ditto	Officers' Mess, 37th
50	12 $\frac{1}{4}$	44	...	Gilgit	Dogras (Astor var.)
33 $\frac{3}{4}$	10	23 $\frac{1}{2}$	...	...	Officers' Mess, 37th Dogras (Suleiman var.)

## THE THAR OR TEHR.

*Hemitragus jemlaicus* or *Capra jharal*. Native names : *Tehr*, *Jehr*, Western Himalayas ; *Kras*, *Jagla*, Kashmir ; *Kart*, Kulu and Chamba ; *Jharal*, Nepal ; *Jhula* (male), *Tharni* (female), Kunawar ; *Esbu* (male), *Esbi* (female), Sutlej above Chini.

*Habitat*.—Throughout the Himalayas from Kashmir to Sikhim.

*Period of gestation*.—Six months, kids being born in June or July.

*Description*.—A long, narrow and straight head ; horns slightly wrinkled, much flattened on each side, almost touching at the base and diverging backwards in a sharp curve. Hair short on the head, much longer on the body, old males having a shaggy mane reaching to the knees which, with the breast, are callous. Four teats. It is a rich dark brown in colour on top, shading to paler at the base ; males are much darker than females, but there is great variety in colour. The face and front of all the limbs very dark, old males having a dark band down the back. It is a forest-loving animal, and prefers steep tree-covered slopes. Females occasionally affect the open, old males seem to prefer the thickest jungle. The Tahr finds a footing in the most impossible looking places.

*Measurements*.—Males weigh up to 200 lbs., stands from 3 feet to 3 feet 4 inches at shoulder, with a total length of 4 feet 6 inches ; the horns are small,

ranging from 12 to nearly 15 inches round the curve, with a basal girth of 9 inches and a span of about 10 inches. Female horns seldom exceed 9 inches.

*Record Heads.*—The best head on record was in the possession of Wilson the well known Himalayan shikari "Mountaineer;" we have it on the authority of Mr. Hume that it measured  $16\frac{1}{2}$  ins., and was  $11\frac{1}{2}$  ins. in girth. Heads of 14 inches upwards are now-a-days tolerably scarce, details of several I give further on. The British Museum specimen is  $13\frac{3}{4}$  ins. by 9 ins., and that in the Indian Museum, presented by Mr. Hodgson, the naturalist, is 13 ins. by 9 ins.

Length. Inches.	Girth. Inches.	Tip to tip. Inches.	Place.	Remarks.
$15\frac{1}{4}$	$8\frac{1}{4}$	9	Gurhwal	Mr. V. A. Mackinnon (bought at the sale of the late Mr. Wilson "Mountaineer.")
$14\frac{1}{5}$	$8\frac{3}{4}$	5	Chamba	Capt. J. T. C. Murray.
$14\frac{7}{8}$	$9\frac{1}{4}$	$7\frac{1}{2}$	Gurhwal	Officers' Mess, 3rd Gurkhas.
$14\frac{3}{4}$	$9\frac{3}{4}$	...	Chamba	Capt. Phillips.
$14\frac{3}{4}$	...	...	Pade Dist. Kashmir	J. M. Cameron.
$14\frac{1}{3}$	9	6	Tehri Gurhwal	Lieut S. H. Charrington.
$14\frac{1}{2}$	...	...	Gurhwal	A. P. Davis.
$14\frac{1}{4}$	$8\frac{1}{2}$	...	Ditto	Capt. Phillips.

Length. Inches.	Girth. Inches.	Tip to tip. Inches.	Place.		REMARKS.
14	...	...	Tehri Gurhwal	...	Lt. C. J. Ratcliff.
14	...	...	Gurhwal	..	A. P. Davis.
13½	...	...	Tehri Gurhwal	...	Lt. C. J. Ratcliff.
13½	...	...	Gurhwal	...	A. P. Davis.
13¾	...	...	Ditto	...	Ditto.
13	...	...	Ditto	...	Ditto
13	...	...	Kishtwar	..	Col A. E. Ward.
11½	8¾	5	Gurhwal	...	Lt.-Col. C. E. Nichol.
11¼	8½	6½	Ditto	...	Ditto.

### THE NILGIRI WILD GOAT.

*Hemitragus hylocrius* or *capra hylocrius*. Native names : *Warri'atu*, Tamil ; *Kard-ardu*, Can. ; *Mulla-atu*, Malabar. The "Ibex" of sportsmen.

*Habitat*.—The Nilgiris and Southern India hills and the Western Ghauts from the Anamalais to Cape Comorin and chiefly found at elevations between 4,000 and 6,000 feet.

*Period of gestation*.—Uncertain ; but breeding appears to go on almost throughout the year ; two at a birth.

*Description.*—Short, thick, coarse, yellowish brown hair, the lower parts paler. Old males are almost black on the face and limbs with a short stiff mane on the ridge of the neck and withers. Knees callous. The horns almost touch at the base, are sub-parallel for some distance, then curve sharply backwards and outwards ; two teats. In very old males the lumbar tract is almost white—the saddle black.

In habits and haunts it resembles the Tahr, though it dwells in a more tropical climate. It keeps above the forest and rarely enters woods, preferring grassy slopes and precipitous crags, feeding morning and evening and resting during the day. They are found in herds of from 5 to 50, are very nimble, quick sighted and wary, and old female usually acting as sentinel : the males have a pronounced caprine odour and their flesh is rank, but that of the does and young males is excellent.

*Measurements.*—Old males from 39 to 42 ins. at shoulder ; 50 ins. from nose to tail ; tail, 3 ins. ; male horns from 12 to 16 ins. round the curve ; female horns, 8 or 9 ins.

*Record Heads.*—The best head of which there is any authentic record was got in the Nilgiris some years ago and measured  $17\frac{1}{2}$  ins. In his notes on Jerdon's "Mammals" McMaster gives 17 ins. by  $9\frac{3}{4}$  ins. and  $15\frac{3}{4}$  ins. by 9 ins., as the two best heads he had seen ; these were shot near Ootacamund by

"M. C. S." in the early sixties. Capt. S. H. Charrington shot one in S. Madras which measured 15 ins., girth 8 ins., tip to tip 6 ins. Mr. N. L. Sheldon bagged a good head measuring  $14\frac{3}{4}$  ins., by  $8\frac{5}{8}$  ins. in girth, in 1906. Capt. H. R. Milvain records a specimen of  $14\frac{1}{4}$  ins., and Capt. S. H. Charrington one of 14 ins.,  $7\frac{1}{2}$  ins. girth,  $4\frac{1}{2}$  ins. tip to tip. The Indian Museum specimen, presented by the Rev. H. Baker, Travancore, is  $14\frac{3}{4}$  ins. by 8 ins., and the British Museum specimen is a quarter of an inch less in length but  $\frac{5}{8}$  of an inch more in girth.

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## THE SEROW OR HIMALAYAN GOAT ANTELOPE.

*Nemorhoedus bubalinus*. Native names : Serow, N. W. Himalayas ; *Salabhir*, *Ramu Halj*, Kashmir ; *Goa*, Chamba ; *Yamu*, Kulu ; *Gaya*, Sikhim ; *Eimu*, on the Sutlej ; *Paipa*, Shan States.

*Habitat*.—Throughout the Himalayas from 6,000 to 12,000 feet.

*Period of gestation*.—Eight months; usually one at a birth.

*Description*.—“An extraordinary mixture of antelope, goat, sheep and donkey” fairly well describes this animal. It has a large head and ears and a

heavy body ; coarse, thin hair of moderate length, with a crest from the nape to the withers. It is blackish grey above with a black head and neck, the darker colour merging into rusty red on the sides and insides of the limbs ; the belly being a dirty white, muzzle and chin the same colour. Horns black.

It has an awkward gait, but is a good climber. It is solitary as a rule ; found in thick forest or rocky hill sides, and it shelters in caves, under trees and overhanging rocks. Shy and difficult to stalk, it is fierce and dangerous when brought to bay. Its alarm cry is a combination of steam whistle and snort. Its flesh is coarse.

*Measurements.*—Average height at shoulder, 38 ins. ; average horn measurements, 10 ins. ; girth, 5 to 6 ins. ; length from horns to root of tail, 50 ins. ; weight over 200 lbs.

*Record Heads.*—Mr. E. C. Stuart Baker, the well-known Indian sportsman and naturalist, holds the record with a head that measures as follows :—right horn  $12\frac{3}{4}$  ins., left horn  $12\frac{5}{8}$  ins., girth 6 ins. Col. A. E. Ward in his *Sportsman's Guide*, records 12 ins., shot in the Ganges Valley, and Mr. A. P. Davis sends me the following particulars of a fine head shot in Gurhwal, right horn  $10\frac{1}{2}$  ins., left horn  $9\frac{3}{4}$  ins., girth  $5\frac{1}{2}$  ins., tip to tip  $3\frac{1}{2}$  ins. There are specimens in the British Museum of  $9\frac{3}{4}$  and  $9\frac{1}{2}$  ins. Baldwin, in his old fashioned book of sport, talks of a  $13\frac{1}{2}$  ins. specimen.

Length. Inches.	Girth. Inches.	Tip to tip. Inches.	Place.	REMARKS.
12 $\frac{3}{4}$ rt. 12 $\frac{1}{2}$ lft. }	6	...		E. C. Stuart Baker, F.Z.S.
10 $\frac{1}{2}$	5	4	Mussoorie	V. A. Mackinnon.
10	...	...	Gurhwal	Lt. C. J. Ratcliff
8 $\frac{3}{4}$	5 $\frac{1}{2}$	4 $\frac{1}{8}$		Officers' Mess, 3rd Gurkhas.
8 $\frac{1}{2}$	5	3 $\frac{1}{4}$	Kumaon	Lt.-Col. C. E. Nichol.
8	4 $\frac{1}{2}$	3 $\frac{1}{2}$	Ditto	Ditto.

## THE BURMESE GOAT ANTELOPE.

*Nemorhaedus Sumatrensis.* Native names : *Tau-tshiek*, Burmese ; *Tau-myin*, Pegu.

*Habitat.*—Assam, Burma and Siam.

*Period of gestation.*—Eight months.

*Description.*—Closely resembling the Serow, it is more rufous in colour and a trifle smaller.

*Measurements.*—An adult male is 36 ins. at shoulder; girth of body, 36 ins. ; horns, 8 to 9 ins. ; length from nose to root of tail, 50 ins.

*Record Heads.*—There is a 9 inch specimen in the British Museum from Sumatra, and one of the same measurement in the Indian Museum, presented by Sir A. Phayre from the Arrakan Hills. The Perak Museum has one of  $8\frac{3}{4}$  inches, and in his book dealing with sport in Burma, Mr. W. S. Thom records a female, the horns of which measured 7 inches. Mr. C. B. Mogridge records an 8 inch specimen to his own rifle. The largest heads are credited to Burma and are said to be 11 inches and 10 inches respectively.

Length. Inches.	Girth. Inches.	Tip to tip. Inches.	Height. Ft. Ins.	Weight. 180 lb. clean.	Place. Burma ...	REMARKS. C. W. A. Bruce.
$9\frac{1}{2}$	$5\frac{3}{4}$	4	3 10	...	Ditto ...	A. Weston.
$9\frac{1}{2}$	$5\frac{1}{2}$	$5\frac{1}{2}$	...	...	Ditto ...	Vety.-Capt. G. H. Evans.
$9\frac{1}{4}$	$5\frac{7}{8}$	$5\frac{3}{4}$	...	...	Ditto ...	Ditto.
9	6	$5\frac{1}{4}$	...	...		

## THE THAKIN.

*Budorcas Taxicolor.* Native Name : *Thakin* or *Thakon*.

*Habitat.*—The Assam frontier and the Mishmi Hills.

*Description.*—A heavily-built goat-antelope type of animal, very like the Serow, short tail, large hoofs, large head with convex profile, thick and large horns curving somewhat like those of a buffalo. Head black, body varying in colour from pale dun to deep reddish brown.

*Measurements.*—Length  $6\frac{1}{2}$  ft., height  $3\frac{1}{2}$  ft., tail 3 ins. ; skull 18 ins. long by  $7\frac{3}{4}$  ins. wide ; horns 18 to 25 inches long in males and from 10 to 13 inches in girth.

Length.	Girth.	Tip to tip.	Widest Spread.	Locality.	REMARKS.
25 lft.	13 in.	11 $\frac{1}{2}$	13 $\frac{1}{4}$	Assam ...	F. Needham, C.I.E.
24 $\frac{3}{4}$ rt.	12 $\frac{1}{2}$ in. }	11 $\frac{1}{2}$	13 $\frac{1}{4}$	Mishmi Hills	Indian Museum.
24 $\frac{1}{4}$	12 $\frac{3}{4}$	12 $\frac{3}{4}$	12 $\frac{1}{2}$	Assam ...	F. Needham, C.I.E.
23	15 $\frac{1}{2}$	10 $\frac{1}{2}$	12 $\frac{1}{2}$	Assam ...	British Museum.
22 $\frac{3}{4}$	10 $\frac{1}{2}$	14 $\frac{3}{4}$	13 $\frac{1}{4}$	Mishmi Hills	B. N. History Society's Museum.
22	12 $\frac{3}{4}$	12 $\frac{1}{2}$	12 $\frac{1}{2}$	.....	L. W. Middleton.
21 $\frac{1}{4}$	11	11 $\frac{1}{4}$	12	.....	L. W. Middleton.
18	10	10 $\frac{1}{2}$	11	.....	

## THE GORAL.

*Cemas goral* or *nemorhœdus goral*. Native names : *Goral*, N. W. Himalayas ; *Pij, Pijur, Rai, Rom*, Kashmir ; *Sah, Sarr*, Sutlej Valley ; *Suh ging*, Lepcha ; *Ra-giyu*, Sikhim and Bhutan ; *Deo chagol*, Assam.

*Habitat*.—Himalayas, from Kashmir to Bhutan, between 3,000 and 8,000 feet ; also in the Naga hills and parts of Assam.

*Period of gestation*.—Six months ; one at a birth in May or June.

*Description*.—One of the commonest and least fearless of Himalayan animals. It is goat-like in form, with stout limbs and coarse hair, a small crest running from the nape to the withers ; the colour is brown and much paler below ; the face pale but darkening towards the horns ; a black line from the nape to the tail ; dark line down the front of each leg. Throat white, tail black, horns black and sub-parallel, scarcely diverging.

It associates in parties of from four to eight, haunts grassy hills or rocky ground in the midst of forest, feeds morning and evening as a rule. Old males are generally solitary. The alarm note is a hissing snort.

*Measurements*.—Height at shoulder, 27 ins., length from snout to root of tail, 50 ins.; tail, 4 ins.; horns of males, 6 to 8 ins., of females, less.

*Record Heads.*--Heads of over 9 inches are rare, but have been occasionally recorded. "Jonas" (*Asian*, 15-8-82) describes a pair of horns  $9\frac{3}{4}$  inches; Colonel A. E. Ward writes me that he has shot Gorals with heads of  $8\frac{1}{2}$  and 8 inches in Kumaon; the best specimen in the British Museum is  $7\frac{5}{8}$  ins.; that in the Indian Museum is 7 inches only and was presented by Mr. Hodgson.

Length. Inches.	Girth. Inches.	Tip to tip. Inches.	Place.	REMARKS.
$8\frac{3}{4}$	$3\frac{3}{4}$	$3\frac{3}{4}$	Mussoorie	V. A. Mackinnon (picked up.)
8	$4\frac{1}{4}$	$3\frac{1}{8}$	Ditto	V. A. Mackinnon.
$7\frac{1}{8}$	4	$2\frac{3}{4}$	Chamba	Capt. J. T. C. Murray.
$7\frac{5}{8}$	...	...	Tehri Gurhwal	Capt. N. L. Learmouth.
$7\frac{1}{2}$	...	...	Gurhwal	A. P. Davis.
$7\frac{1}{4}$	...	...	Ditto	Officers' Mess, 37th Dogras.
$7\frac{1}{8}$	4	$2\frac{3}{4}$	Kumaon	Cpt. M. E. Dopping Hegenstal.
7	...	...	Mussoorie	Lt. S. H. Charrington.
$6\frac{1}{8}$	$3\frac{1}{2}$	$2\frac{1}{2}$	Kumaon	Lt.-Col. C. E. Nichol.
$6\frac{3}{4}$	$3\frac{1}{4}$	$3\frac{3}{16}$	Almora	Capt. G. H. Channer.
$6\frac{1}{2}$	...	...	Tehri Gurhwal	Lt. S. H. Charrington.
$6\frac{1}{2}$	$3\frac{3}{8}$	$3\frac{1}{2}$	Gurhwal	Lt.-Col. C. E. Nichol.
$6\frac{1}{8}$	$3\frac{7}{8}$	3	Kumaon	Cpt. M. E. Dopping Hegenstal.

## THE NILGAI OR BLUE BULL.

*Bcs Elephas Tragocamelus* or *Portax Pictus*. Native names : *Nilgau*, male ; *Nilgai*, female ; *Rojh*, *Rojra*, Hind. ; *Rui*, Deccan and Guzerat ; *Neelal* and *Guraya*, Gond. ; *Murim*, Kole ; *Monu-potu*, Tamil ; *Manu potu*, Telugu ; *Mairu*, or *Maravi*, Canarese. *Roz*, Kathiawar.

*Habitat*.—The Indian Peninsula from base of the Himalayas to Southern Mysore ; it is not found in Eastern Bengal or Assam.

*Period of gestation*.—Between eight and nine months ; one or two at a birth.

*Description*.—Equine in form ; deep and compressed neck, tail reaching hocks. Adult males are dark grey with mane, throat tuft and tail tip black. The lips, chin, lower surface of tail, belly and fetlocks are white, horns black ; the females and young are brown. Thin bush, scrub and grassy plains are their usual haunts. They infest cultivated plains and do much damage to crops. The males are often solitary, though old bulls occasionally herd together. They feed throughout the day grazing and browsing ; they drink very rarely. Their gait is a heavy gallop, but they go much faster than they appear to. They have miserable heads, and few sportsmen shoot them except for meat. They can be tamed and used as beasts of burden ; the flesh is fairly good.

*Measurements.*—Average height at shoulder, 5*1*/<sub>2</sub> ins.; average horn measurement, 7 ins.

*Record Heads.*—Baldwin (page 186) says he saw a pair 10*1*/<sub>2</sub> inches long. The nearest approach to this is the 9*1*/<sub>2</sub> inch specimen, details of which follow: the British Museum specimen is 9*1*/<sub>4</sub> ins. and that in the Indian Museum, presented by Mr. J. Cockburn, 8*3*/<sub>4</sub> ins. Col. L. L. Fenton writes to me of a 8*1*/<sub>4</sub> inch head he got some years ago in Kathiawar.

Length. Inches.	Girth. Inches.	Tip to tip. Inches.	Place.	REMARKS.
9 <i>1</i> / <sub>2</sub>	8 <i>1</i> / <sub>2</sub>	7	Nimar, C. P.	Lt. R. D. Gardner.
9 <i>3</i> / <sub>8</sub>	...	...	Mutra ...	Lt. M. A. Muir.
9	7	7	Mutra ...	Lt. S. H. Charrington.
9	7	7	Mutra ...	Lt. S. H. Charrington.
9	...	...	Khodri, C. P.	Capt. A. Mactavish, 3rd Brahmans.
8 <i>1</i> / <sub>4</sub>	7	...	Oudh ...	C. Rose.
8 <i>5</i> / <sub>8</sub>	8	5 <i>1</i> / <sub>2</sub>	Narsinghpur	J. H. McNeale.
8 <i>6</i> / <sub>8</sub>	...	5	Mutra ...	Officers' Mess, 3rd Gurkhas
8 <i>1</i> / <sub>4</sub>	6	6	Mutra ...	Lt. S. H. Charrington.
8	7	8	Nimar, C. P.	Lt. R. D. Gardner.
8	...	...	Chindwin District	Col. L. L. Fenton.
7 <i>3</i> / <sub>8</sub>	...	...	Mutra ...	Major P. Lea Birch, R.A.

## THE FOUR-HORNED ANTELOPE.

*Tetracerus quadricornis.* Native names: *Charsinga*, *Chausinga*, *Chanka Doda*, Hind.; *Benkra*, Mahar; *Bhokra*, Guzr.; *Bhir*, or *Korta*, Gond.; *Menda*, Kurku; *Kotari*, Chota Nagpur; *Jungli bukri*, Deccan. *Guntda* or *Botad*, Kathiawar; *Kurang*, Concan; *Kond Kuri*, Canarese; *Kard Kuri*, Telegu.

*Habitat.*—Along the base of the Himalayas, from the Punjab to Nepal, and downwards throughout the Peninsula, except in Lower Bengal and the Malabar Coast in Madras.

*Period of gestation.*—Six months. The young are born in January or February.

*Description.*—The usual antelope coat of thin, harsh, short hair, of a pale brown above, passing on the sides and limbs into the white of the lower parts. A dark stripe down the front of each leg, and in some animals down the back. It has four horns, the posterior usually 3 to 4 ins., the anterior 1 to  $1\frac{1}{2}$  ins. It is not gregarious, seldom more than two being seen together. It haunts thin jungle on undulating ground; it drinks daily and never ranges far from water; it is shy and moves with a peculiar jerky action whether walking or running.

*Measurements.*—Height at shoulder, 25 ins.; at croup, 27 ins.; length from muzzle to rump, 42 ins.; weight, 43 lbs. The females are smaller.

*Record Heads.*—The record is 5 inches, and then we have several heads from 4 inches to  $4\frac{1}{2}$  inches ; in the British Museum there is one of 4 inches and in the Indian Museum one of  $3\frac{3}{4}$  inches which came from the Central Provinces, and was presented by the late Mr. W. T. Blandford.

LENGTH.		GIRTH.		TIP TO TIP.		Place.	REMARKS.
Rear.	Front.	Rear.	Front.	Rear.	Front.		
Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Chindwin Dist.	Col. L. L. Fenton.
$4\frac{3}{8}$	$1\frac{7}{8}$	...	...	...	...	Ditto	Ditto.
$4\frac{3}{8}$	$1\frac{5}{8}$	...	...	...	...	Birar	Major R. G. Burton.
4	$2\frac{3}{4}$	...	...	...	...	Nimar, C. P.	Lt. R. D. Gardner.
4	$1\frac{3}{4}$	$2\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{7}{8}$	$\frac{5}{8}$	Chikalda	Capt. A. I. R. Glasfurd,
4	$1\frac{1}{2}$	$2\frac{1}{2}$	...	$2\frac{1}{2}$	...	Birar	Major R. G. Burton,
$3\frac{1}{2}$	2	...	...	...	...	Aheri, C. P.	Lt. S. H. Charrington.
$3\frac{1}{2}$	...	...	...	...	...		

## THE BLACK BUCK OR INDIAN ANTELOPE.

*Antelope Cervicapra*. Native names: *Gua* (male); *Harin*, Hind.; *Kala* (male), *Goria* (female), *Tirhoot*; *Barant Sasia*, Nepal; *Bamani Harin*, Ooriya; *Veliman*, Tamil; *Chigri*, *Hoolay-Kerra* and *Jinki*, Canarese; *Kalyar* (male), *Réda* (female), Kathiawar; *Bureta*, Bhagalpur; *Hiru*, Mahr.

*Habitat*.—Throughout the plains of India, though very rarely in Bengal. They are most abundant in the U. P. Rajputana and the Deccan.

*Period of gestation*.—Six months, one or two at a birth.

*Description*.—Does and young bucks are yellowish fawn above and white below and on the inside of the limbs, the colours being sharply divided. Old bucks are blackish brown and white. The horns vary in divergence and closeness of spiral: horned females are very rare.

It affects open plains of short grass and cultivated lands and associates in herds. Never enters forests or high grass and rarely affects bushes; it is extremely wary in districts where it is much disturbed. Its flesh is excellent. It is stalked and shot, run down on horseback and speared, and is the usual quarry of the hunting leopard. Its sight and smell are keen and its pace very swift. It is a bellicose animal, the bucks fighting continually.

*Measurements.*—Average height at shoulder, 2 ft. 8 ins.; average weight, 85 lbs. Horns of adult are usually 16 to 20 ins., and the longest horns are found in Rajputana.

*Record Heads.* - The longest pair of horns which I find recorded were those of a buck shot on the Mohun Pass, and "Gangootri Shikari" (*Asian*, 27-4-80) measured this head  $30\frac{3}{4}$  inches. A pair of 30 inch horns was got some years ago by Col. C. J. Garstin near Ferozepore; "J. V. S." (*Asian*, 4-6-86) gives  $28\frac{1}{8}$  inches, got in the Saugor district by Mr. Brownger of the Midland Railway Survey, as the best head he had ever seen. A few 28 inch heads are recorded by "Triangle" and "Blood" and A. E. C. Cassey in Indian sporting papers in the days when anything over 26 inches was considered impossible. Heads over 25 inches are rarely got now-a-days, a 24-inch specimen being considered distinctly good.

Length. Inches.	Girth. Inches.	Tip to tip. Inches.	Place.	REMARKS.
27	...	...	C. P. ...	A. M. Long.
26	5	...	Indore ...	Lady Jenkins.
26	$4\frac{7}{8}$	...	Narsinghpur ...	J. H. McNeale.
$25\frac{1}{2}$	$5\frac{1}{2}$	14	Ferozepore ...	Officers' Mess, 37th Dogras.

Length. Inches.	Girth. Inches.	Tip to tip. Inches.	Place.	REMARKS.
25	4 $\frac{3}{4}$	19	Wadhwan ...	Col. L. L. Fenton.
25	...	...	Hallur, S. M. R.	Lt. Norton, Carabineers.
24 $\frac{1}{2}$	...	...	Hallur, S. M. R.	Lt. Lloyd, Carabineers.
24 $\frac{1}{4}$	...	...	Kagerol ...	Major P. Lea Birch, R.A.
24 $\frac{1}{8}$	5	14 $\frac{1}{8}$	Ferozepore	Officers' Mess, 37th Dogras.
24	...	...	Jagner ...	Major P. Lea Birch, R.A.
24	...	...	Kagerol ...	Ditto.
24	...	...	Jagner ...	Cpt. A Mactavish, 3rd Brahmans.
23 $\frac{7}{8}$	...	...	Agra ...	Major P. Lea Birch, R.A.
23 $\frac{3}{4}$	...	...	Nyagaon ...	Ditto.
23 $\frac{3}{4}$	...	...	Gwalior ...	Lt. C. Shepherd, 53rd Sikhs.
23 $\frac{1}{2}$	...	...	Muttra ...	Lt. R. P. Wells.
23	...	...	Patiala ...	Major C. M. Priestley.
23	...	...	Hissar ...	Ditto.
22 $\frac{1}{2}$	5	19	Bikanir ...	Capt. G. P. Evans.

## THE THIBETAN ANTELOPE OR CHIRU.

*Pantholops Hodgsoni.* Native names : *Chiru Chuhu*, Thibetan ; *Tsus* (male), *Chus* (female).

*Habitat.*—Throughout Thibet from 12,000 to 18,000 feet, also found in Northern Ladak, and North of Sikkim.

*Description.*—Pale fawn above with pinkish or slaty grey hair towards the base which varges into white at the root. Face dark brown with a brown or black streak down the front of each leg in males ; no black marks on females. Fur very thick and close with a strong *pushm*. A very shy animal, the sexes living apart in summer. It keeps to the plains and open valleys, affects the neighbourhood of streams, and digs holes deep enough to conceal itself.

*Period of gestation.*—Six months, a single young being produced in summer.

*Measurements.*—Height at shoulder 32 inches ; length from nose to rump 50 inches, tail 9 inches, ear  $5\frac{1}{2}$  inches ; girth of body 39 inches. (*Hodgson*) Average horns 24 inches.

*Record Heads.*—In recent years no head of over 27 inches has been recorded, but Brian Hodgson when he originally described the Chiru gave the horn measurement as 30 inches. Col. A. E. Ward, in his *Sportsman's Guide*, gives 26 inches as the length of a pair of horns got by him in Ladak.

General A. A. A. Kinloch says, he has heard of 28 inch horns, but the best pair shot by himself were  $25\frac{1}{2}$  inches. The Indian Museum specimen is 24 inches only.

Length. Inches.	Girth. Inches.	Tip to tip. Inches.	Place.	REMARKS.
27	$5\frac{5}{8}$	$14\frac{1}{2}$	MansonawarLake, Thibet	Capt. G. K. Channer.
$26\frac{1}{2}$	$5\frac{1}{2}$	$10\frac{1}{2}$	Ditto ..	Ditto.
25	$5\frac{7}{8}$	$13\frac{1}{2}$	Ditto ...	Ditto.
25	$5\frac{1}{8}$	$11\frac{1}{2}$	Ditto ...	Ditto
$24\frac{1}{2}$	$5\frac{1}{4}$	9	Ditto ...	Ditto.
24	...	12	N. W. Thibet ...	Lt S. H. Charrington.
$23\frac{1}{2}$	...	19	Ditto ...	Ditto

## THE INDIAN GAZELLE, CHINKARA OR RAVINE DEER.

*Gazella Bennettii.* Native names : *Chinkara*, *Kalpunch*, Hind. ; *Phanskela*, U. P. ; *Ask*, Baluch. ; *Kalsipi*, Mahr. ; *Tiska*, *Mudari*, Can. ; *Sankhuli*, Mysore ; *Burudu Jinka*, Tel. ; *Merrik*, Gond ; *Hirni*, Punjab.

*Habitat.*—The plains and low hills of the U. P. and Central India, Baluchistan, Punjab, Sind and Rajputana, Bombay and Madras to south of the Kistna.

*Description.*—Light chestnut above, white on sides and buttocks, chin, breast and lower parts white, tail black, knee brushes dark brown, a whitish streak down each side of the face, which is dark rufous. Both sexes are horned ; those in the male nearly straight, the number of rings usually being 15 or 16.

It is usually seen in small parties in ravines and waste ground, seldom on alluvial plains or near cultivation ; sand hills it is particularly partial to, and it abounds in the Indian deserts. Grass and leaves are its food, and it is said never to drink. It is very swift, not particularly wary, and when alarmed, stamps its fore-feet and hisses through the nose, hence "Chinkara"—the Sneezer. The flesh is excellent.

*Measurements.*—Average height at shoulder, 26 ins. Average horn measurement, 11 ins. Weight of bucks, 50 lbs. ; of does, 40 lbs.

*Record Heads.*—Rajputana has provided the record, a fifteen inch head now in the possession of the Rana of Jhalawar. A buck with  $1\frac{1}{2}$  inch horns

was shot by Baldwin at Jhansi, and a  $14\frac{3}{4}$  inch head is owned by Mr. Meredyth-Young, details of which I give further on. "Truthful James" (*Asian*, 187-82) reports a Chinkara with  $13\frac{3}{4}$  inch horns got in the Jhelum district. The Indian Museum head measures 12 inches, and anything above that is a good head.

Length. Inches.	Girth. Inches.	Tip to tip. Inches.	Place.	REMARKS.
$14\frac{3}{4}$	...	...	Jhelum ..	A. Meredyth-Young.
$14\frac{3}{4}$	$4\frac{1}{2}$	$7\frac{5}{8}$	... ...	Capt. A. G. Wauchope.
$14$ ft. {	$4\frac{5}{8}$	6	Punjab ...	Capt. S. A. Croke.
$13\frac{5}{8}$ rt. }				
$13\frac{3}{4}$	$4\frac{3}{4}$	$6\frac{1}{4}$	Muttra ...	Officers' Mess, 15th Hussars.
$13\frac{1}{4}$	$4\frac{1}{8}$	$8\frac{2}{4}$	Bikanir ...	Capt. G. P. Evans.
13	...	...	Patiala ...	Major C. M. Priestley,
13	$4\frac{3}{4}$	$6\frac{7}{8}$	Bikanir ...	Capt. G. K. Channer.
$12\frac{7}{8}$	...	...	Jagner ...	Capt. A. Mactavish, 3rd Brahmans.
$12\frac{1}{2}$	4	$4\frac{1}{2}$	Bikanir ...	" G. P. Evans.
$12\frac{3}{8}$	...	...	Nyagaon ...	Major P. Lea-Birch, R.A.
12	...	...	Ditto ...	Ditto.
12	$4\frac{5}{8}$	7	Hissar ...	Lt.-Col. C. E. Nichol,
12	4	$5\frac{1}{2}$	Punjab ...	Ditto.
12	$4\frac{1}{16}$	6	Bikanir ...	Capt. G. K. Channer.
12	$4\frac{1}{2}$	6	Agra ...	Lt. H. B. Skinner, 2nd Rajputs.
$11\frac{3}{4}$	...	...	Agra ...	Major P. Lea-Birch, R.A.

## THE THIBETAN GAZELLE.

*Gazella Picticaudata.* Native name : *Goa, ragoa*, Thibetan.

*Habitat.*—The Thibetan plateau from 13,000 to 18,000 Ladak, Northern Nepal and Sikhim.

*Description.*—Sandy fawn above, merging into white below ; the tail has a white caudal disc and a brown or black tip. Females hornless. Male horns slender, much curved, diverging, and the tips curving forwards. No knee brushes. Tail and ears very short. It is not shy, associates in small parties on bleak plains.

*Measurements.*—Height at shoulder, 22 ins. ; length from snout to rump, 42 ins. average horns, 12 ins.

*Record Heads.*—There is only one head recorded of over 14 inches. I give below details of a couple of 14 inch specimens ; that in the Indian Museum, presented by Col. Jenkins in 1846, measures 13 inches. Horns of between 11 and 12 inches are common.

Length.	Girth.	Tip to tip.	Place.	REMARKS.
Inches.	Inches.	Inches.		
14	.....	.....	Ladak ...	Major Brown, R.H.A.
14	... ..	.....	Do. ...	C. C. Winn.
13	3½	.....	Rupshu, Ladak	Lt. F. W. A. Wells
12 <sup>1</sup> / <sub>6</sub>	3 <sup>1</sup> / <sub>8</sub>	4	Thibet ...	Officers' Mess, 3rd Gurkhas.
12 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	Do. ...	Capt. G. K. Channer.

### THE MUNTJAC, KAKUR OR BARKING DEER.

*Curvulus muntjac.* Native names : *Kakur*, *Jungli Buckra*, Rind. ; *Ruthwa*, Nepal ; *Karsiar*, Bhotan ; *Sikku*, Lepcha ; *Maya*, Beng. ; *Gutra* (male), *Gutri* (female), *Bherki* and *Korta*, Gond. ; *Menda*, Kurku ; *Bekra*, Mahr. ; *Kaukari*, Can. ; *Kukagori*, Tel. ; *Kalai*, Tam. ; *Gyi*, Burma. In Southern India vulgarly known as the "jungle sheep" or *jungli bukri*.

*Habitat.*—Throughout India and Burma, on all thickly-wooded hills, never in the plains or away from tree-forest.

*Period of gestation.*—Six months ; one or two at a birth.

*Description.*—Deep chestnut body, darker on the back, paler below. Face and limbs brown, a dark line down the inside of each horn pedicle. Chin, throat, belly and inside thighs white. Young spotted. Horns drop in May, and the new horns are perfect in August. The horns spring from a long pedicle. Tongue of extreme length ; it can lick its whole face with it.

It is solitary, a dainty walker, swift and wonderfully clever at getting through jungle, running with head low and stern high. Its call is very loud for its size (something like a dog's bark), and it indulges in it morning and evening, uttering it when alarmed or calling its mate. At bay it uses its canine teeth and can inflict severe wounds. It often makes a rattling castanet-like sound when running ; cause unknown. The flesh is good.

*Measurements.*—Average height at shoulder, 23 ins. ; average horn measurements,  $4\frac{1}{2}$  ins. (from fur). Males weigh about 40 lbs.

*Record Heads.*—The best Indian specimens of which we have particulars are those shot by Mr. D. H. Allan, details of which are given below. One of 9 inches (pedicle 4 ins., horn 5 ins.) was got in the Garo Hills in 1881. There is also one of  $8\frac{3}{8}$  inches credited to Mr. W. H. Wilson. Between 6 and  $7\frac{1}{2}$  ins. we have records of several, including one by Col. A. E. Ward of  $7\frac{1}{2}$  ins. and the British Museum specimen  $6\frac{1}{2}$  ins. The Indian Museum possesses a head presented by the late Rajah Rajendra Mullick with  $5\frac{1}{2}$  inch horns, or with the pedicle  $7\frac{3}{4}$  inches.

Length.	Girth.	Tip to tip.	Place.	REMARKS.
Inches	Inches.	Inches.		
Rt. { Horn 6 { 9½ Pedicle 2½ { 9½ }	...	...	U. Chindwin, Burma ...	D. H. Allan.
Lft { Horn 6½ { 9¾ Pedicle 3½ { 9¾ }	...	...		
Rt. { Horn 6½ { 9½ Pedicle 3 { 9¼ }	...	...	U. Chindwin, Burma ...	D. H. Allan.
Lft { Horn 5¾ { 8¾ Pedicle 3 { 8¾ 8¼ 7¼ 6½ 6 rt. 5½ ft.	4¾	...	C. P. ... Kutnee, C. P. ... Berar ... Bukra Duar	Late A. M. Long. Lieut. C. J. Boyce. Major R. G. Burton. Lieut. W. L. Hogg.
6½ rt. 5¾ ft.	4½	2½	Amherst Distt. Burma	D. H. Allan.
5½ 5¾ 5½ 5 5 3½ (Horn) 6½ (Horn) 5½ (Horn) 4	3½ 3¾ 3½ 2 2½ 3½ 2¾ 2½ ...	2⁹/₈ 2⁹/₈ 2¹/₄ 4½ 2³/₄ 2³/₄ 4¹/₂ 5¹/₄ ...	Nilgiris Vizagapatam Nilgiris Gurhwal Kumaon Nepal Terai Gurhwal S. Madras S. Madras	N. L. Sheldon. H. Tyler. N. L. Sheldon. Lt.-Col. C. E. Nichol. Ditto. Capt. G. P. Evans (points 3 x 2). Officers' Mess, 15th Hussars. Capt. H. R. Milvain. Capt. S. H. Charrington.

## THE KASHMIR STAG OR HUNGAL.

*Cervus Cashmirianus* or *Cervus Wallichii*. Native names : *Hungal*, *Miyamar*, Kashmir. Often called *Barasingha* by Natives.

*Habitat*.—The Kashmir Valley between 9,000 and 12,000 ft. in summer, lower in winter, also in parts of Chumba adjoining Kashmir.

*Period of gestation*.—Six months ; the young are born in April.

*Description*.—Brown to dark liver colour ; whitish caudal disc ; sides and limbs paler ; lips, chin, ears whitish. Fawns spotted till the third or fourth year. The horns have brow, bez and trez and royal tynes. Adults usually carry five points. Males generally solitary. Small heads in summer, larger in winter. Horns shed in March ; new horns not perfect till October. They roam from forest to forest, prefer grassy glades and love water.

*Measurements*.—Average height at shoulder, 48 ins. ; length from nose to tail 7 ft.; tail, 5 ins. Average horns, 40 ins.;  $5\frac{1}{2}$  ins. girth at mid beam. Average weight, 450 lbs.

*Record Heads*.—There is a very fine head in the Bombay Natural History Society's Museum, the measurements of which are as follow :—Length 47 ins.; circum.  $7\frac{5}{8}$  ins; tip to tip 21 ins.; spread 36 ins.; points 12. Sterndale gives details of one of 47 ins. by  $7\frac{3}{4}$  ins. girth. Col. A. E. Ward sends me details

(see further on) of a 48 inch head, which I believe to be the record. He also gave me details some years ago of a 47 inch and a 45 inch head shot by him in the Sind Valley. Large heads, that is to say, anything over 44 inches, are not easy to get now-a-days.

Length. Inches.	Girth. Inches.	Tip to tip. Inches.	Spread. Inches.	Points. Inches.	Place. Sinde Valley	REMARKS.
48	7 $\frac{3}{4}$	.....	.....	.....	Sinde Valley	Col. A. E. Ward.
46 $\frac{1}{4}$ rt. {	8	.....	50 $\frac{1}{4}$	.....	Kashmir ...	Etherington Smith.
44 $\frac{1}{2}$ lft. {						
46	.....	.....	.....	12	.....	Capt. S B. Paterson.
40 $\frac{1}{4}$	.....	.....	.....	10	Kashmir ...	Officers' Mess, 37th, Dogras
39 $\frac{1}{6}$	5 $\frac{5}{8}$	22	39 $\frac{1}{2}$	5+5	Ditto ...	Officers' Mess, 3rd Gurkhas.
38 $\frac{1}{8}$	6 $\frac{1}{9}$	19	36 $\frac{3}{4}$	5+5	Ditto ...	Officers' Mess, 3rd Gurkhas.
38 $\frac{1}{2}$	5	29	32	5+5	Ditto ...	Lt.-Col C.E. Nicol.
38 $\frac{1}{2}$	5 $\frac{3}{8}$	21 $\frac{3}{4}$	.....	10	Ditto ...	Capt. J. A. S. Bal- main,
37 $\frac{3}{4}$	5 $\frac{1}{4}$	19 $\frac{1}{2}$	.....	12	Ditto ...	Capt. J.A.S.Balmain
35	6	32 $\frac{1}{2}$	.....	5+5	Ditto ...	Capt. G. P. Evans.

## THE BARASINGHA OR SWAMP DEER.

*Cervus duvauceli.* Native names : *Barasingha*, Hind. ; *Baraya*, Nepal ; *Maha*, Himalayan Terai ; *Maha Goinjak* ( male ), *Gaoni* ( female ), Central India ; *Bheelwah*, Assam.

*Habitat.*—Along the base of the Himalayas, throughout Assam and the Sunderbunds, Sind, Nerbudda Valley, and Central Provinces.

*Description.*—Yellow brown above, paler below in summer, rufous brown in winter, throat and belly and inside thighs whitish, white caudal patch. Young spotted. Hair fine and woolly ; neck maned, tail moderate, and face long. Horns smooth, the brow tine nearly at right angles to the beam, with occasional small points ; beam unbranched for more than half its length when it divides and branches into five points.

It prefers undulating grass land on the skirts of woods. It is highly gregarious ; the horns are shed in January or February. It feeds chiefly on grass ; it is semi-nocturnal and loves to wallow. Flesh excellent.

*Measurements.*—Average height at shoulder, 45 ins. ; length, 6 ft. ; tail, 8 ins. ; weight from 450 lbs. upwards. Average horn measurements, 30 ins. round curve and 5 ins. at mid beam.

*Record Heads.*—Three heads of 41 inches have been got in the Central Provinces : Mr. J. D. Inverarity shot barasingha that carried 38, 37 and 36 inch heads ; Col. A. E. Ward tells me of one that he measured  $36\frac{1}{2}$  inches, from Nepal. The late Mr. H. R. P. Carter "Smoothbore" published in 1884 details of a fine head, 38 ins. long by 9 inches in girth. The Indian Museum specimen from Sirgooja in the Chota Nagpur district, presented by Mr. J. Cockburn, is  $35\frac{1}{2}$  inches and 20 inches from the burr to the bifurcation of the beam—a good head. Swamp deer frequently exhibit a large number of points : the late H. B. Simson ("Judex") tells us of one with no less than twenty and Baker saw one with 16 points.

Length.	Girth.	Tip to tip.	Spread.	Points.	Place.	REMARKS.
38	$5\frac{1}{4}$	34	$37\frac{1}{8}$	6+5	Assam	J. McTaggart.
36	$7\frac{1}{2}$	$34\frac{1}{2}$	.....	8+6	U. P.	J. C. Faunthorpe.
$35\frac{3}{4}$	...	38	$40\frac{3}{4}$	.....	U. P.	Lt. C. Shepherd, 53rd Sikhs.
$35\frac{1}{2}$	7	$35\frac{1}{2}$	.....	7+5	U. P.	J. C. Faunthorpe.
$34\frac{1}{2}$	$6\frac{1}{2}$	.....	33	7+7	U. P.	J. C. Faunthorpe.
34	$7\frac{1}{2}$	$38\frac{1}{2}$	.....	5+5	U. P.	J. C. Faunthorpe.
$33\frac{1}{4}$	$4\frac{3}{4}$	$32\frac{1}{2}$	33	5+5	Philibit	Lt.-Col. C E. Nichol.

## THE THAMIN OR BROW-ANTLERED DEER.

*Cervus Eldi.* Native names: *Sangnai*, Manipur; *Thameng* or *Thamin*, Burma.

*Habitat.*—Manipur, southwards throughout Burma.

*Description.*—Of moderate size, very coarse hair, extra thick about the neck, tail short. Long narrow head. Extremely long curved brow antler, joining the beam in a continuous curve at right angles to the burr. There is generally a snag in the axle and small points on the upper surface of the brow tine; the beam branches after a considerable distance; then curves backwards, outwards, and lastly forwards. In winter the males are almost black, in summer fawn-coloured, does lighter; lower parts are from pale brown to white according to season, no caudal disc. Young spotted.

They inhabit grassy and swampy plains, in herds from ten to fifty, are sometimes found on the fringe of forest, but usually keep to the open plain. They are fond of wallowing. In Manipur the horns are shed in June, in Burma about September; males acquiring horns in their second year are in their prime at seven years old.

*Measurements.*—Average height at shoulder, 45 inches; does, 42 inches; average horn measurements, from tip of brow antler to end of horn, 36 inches. Average weight of males, 220 lbs.; females, 160 lbs.

*Record Heads.*—The British Museum specimen is  $38\frac{3}{4}$  inches, but several larger heads up to 42 inches have been shot in Burma and Siam. The Indian Museum head, which comes from Manipur and was presented by Dr. McClelland so far back as 1844, measures 32 inches from burr to tip and  $51\frac{1}{2}$  inches from tip of brow antler to tip of beam. A  $38\frac{1}{2}$  inch specimen was measured by "Young Nimrod" in 1881 and recorded in an Indian journal of that year.

Length. Inches.	Girth. Inches.	Tip to tip. Inches.	Brow tine. Inches.	Spread Inches.	Points.	Place.	REMARKS.
38	5	$27\frac{1}{2}$	...	34	...	.....	P. S. H. ( <i>Asian</i> ).
37	5	$27\frac{1}{2}$	$15\frac{1}{4}$	$33\frac{1}{4}$	$3+3$	Upper Burma	Capt. G. P. Evans.
37	5	$20\frac{1}{2}$	$14\frac{1}{2}$	$28\frac{3}{4}$	$4+3$	Ditto	Ditto.
$36\frac{1}{2}$	$4\frac{5}{8}$	$20\frac{3}{4}$	..	$32\frac{1}{2}$	...	Ditto	Lt. C. Elliott.
$35\frac{1}{2}$	$5\frac{1}{2}$	$18\frac{1}{4}$	$15\frac{1}{2}$	28	$6+5$	Ditto	Capt. G. P. Evans.
35	$5\frac{1}{2}$	21	$17\frac{1}{4}$	$26\frac{1}{4}$	$3+4$	Ditto	Ditto.
34	$5\frac{1}{2}$	16	13	25	$8+6$	Ditto	Ditto.
34	...	...	$15\frac{3}{4}$	...	...	Magwe	Major C. M. Priestley.

## THE SAMBUR OR RUSA DEER.

*Cervus unicolor*, *Rusa aristotilis*. Native names: *Sambar*, Hind.; *Jarao*, Nepal; *Maha*, Terai; *Meru*, Mahr.; *Ma-ao*, Gond.; *Dhalnar*, Kurku; *Kadumai*, Tam.; *Gous*, E. Bengal; *Kha-khowa-pohu*, Assam; *Tshat*, Burma; *Kadvi*, Canara.

*Habitat*.—Throughout the Indian Peninsula (except the Punjab) from 10,000 ft. to sea-level; common on alluvial flats, undulating or hilly ground with forest.

*Period of gestation*.—Eight months, one at a birth.

*Description*.—The largest Indian deer. Hair coarse, ears large, mane on neck and throat, tail moderate, horns normally have but three tines. In colour uniform dark brown. chin, lower surfaces, belly inside thighs yellowish. The young are never spotted.

It is essentially a woodland deer, is not very shy, does not herd largely, is nocturnal in its grazing, feeds on grass, and browses on shoots and leaves and drinks daily. The horns are dropped in March and April, but this is very irregular, stags often retaining their horns for years. Speed moderate; it is usually driven, often stalked and very tenacious of life. It is extremely belligerent, and its flesh is coarse, but well-flavoured.

*Measurements.*—Average height at shoulder, 54 inches ; average horn measurements, 30 inches ; length, 6 feet 6 inches ; weight, 500 to 700 lbs.

*Record Heads.*—Captain C. E. Jackson, of the Bhopal Battalion, has kindly sent me details of the record head now in the possession of the Bhopal State and shot by the late Nawab, they are as follows :—*Left*  $50\frac{1}{8}$  inches long,  $9\frac{3}{8}$  inches girth : *right* 48 inches long,  $9\frac{7}{8}$  inches girth ; tip to tip 24 inches ; points 3 + 3. In the Bombay Natural History Society's Journal, there is a record of a single horn which measured  $44\frac{1}{2}$  inches : this was knocked off by a shot by Mr. R. Gilbert and as this measurement is from the tip of the beam to where it was broken off above the brow tine, this head in all probability measured over 48 inches. There is a 45 inch head in the collection of the Bombay Natural History Society, and the number of heads recorded between 44 and 45 inches is large. In the following tables will be found details of a fine  $46\frac{1}{4}$  inch head shot by Col. W. H. Salmon.

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## INDIAN VARIETY.

Length.	Girth.	Tip to tip.	Spread.	Place.	REMARKS.
Inches.	Inches.	Inches.	Inches.		
50 $\frac{1}{8}$ lft.	9 $\frac{3}{8}$ lft.	24	...	Bhopal	Nawab of Bhopal,
48 rt.	9 $\frac{7}{8}$ rt.	{		Satpura Hills	Col. W. H. Salmon ( <i>B. N. H. S. Journal.</i> )
46 $\frac{1}{4}$	10 $\frac{1}{4}$	23 $\frac{1}{2}$	36		Capt. A. I. R. Glasfurd.
45 $\frac{1}{2}$	8 $\frac{1}{2}$	...	38	Ellichpur	O. Beeby ( <i>Asian.</i> )
45	9 $\frac{3}{4}$	...	40 $\frac{1}{2}$	.....	<i>Sterndale's Mammalia.</i>
45	9	...	40 $\frac{1}{2}$	.....	
44 $\frac{1}{2}$	...	...	...	Taptee River C.P.	R. Gilbert (Horn broken above brow tine, <i>B.N.H.S. Journal.</i> )
44 $\frac{1}{2}$	9	...	42	Hurda	J. G. Snuggs.
44	10	...	33 $\frac{1}{4}$	.....	J. D. Inverairity.
43	10	25	34	Narsingpur, C.P.	J. H. McNeale.
44	9 $\frac{1}{4}$	23 $\frac{1}{2}$	35	Narsinghpur	J. H. McNeale.
43	7 $\frac{3}{4}$	25	49	C. P.	W. S. Burke ( <i>Indian Field.</i> )
42 $\frac{1}{2}$	11 $\frac{3}{4}$	24 $\frac{1}{2}$	32 $\frac{7}{8}$	Nilgherries	E. M. Windle.
42	11	39	...	Ditto	E. Hadfield.
42	10 $\frac{1}{2}$	...	41 $\frac{1}{2}$	.....	J. D. Inverairity.
41 $\frac{1}{8}$	11 $\frac{1}{2}$	...	..	Central India	Madras Museum.
41	10	...	30 $\frac{1}{2}$	Bori	Col. Forsyth.

## INDIAN VARIETY.—(Contd.)

Length.	Girth,	Tip to tip.	Spread.	Place.	REMARKS
Inches.	Inches.	Inches.	Inches.		
41	9 $\frac{1}{8}$	...	40 $\frac{1}{2}$	.....	O. Beeby ( <i>Asian.</i> )
40	8	...	39	Nilgiris	"Toda" ( <i>Asian.</i> )
40	9 $\frac{1}{2}$	...	39	Tehri Gurhwal	Capt N. L. Learmouth.
39 $\frac{1}{5}$	7 $\frac{1}{8}$	...	39	Chikalda	Capt. A. I. R. Glasfurd.
39 $\frac{1}{2}$	7 $\frac{1}{4}$	27	33 $\frac{3}{4}$	Siwaliks	Lt.-Col. C. E. Nichol.
38 $\frac{1}{2}$	9	...	19	.....	J. D. Inverairity.
38 rt. 38 $\frac{1}{2}$ cft.	6 $\frac{3}{4}$	28 $\frac{1}{2}$	36	Vizagapatam	H. Tyler.
38	7 $\frac{1}{2}$	...	34 $\frac{1}{2}$	Gurhwal	A. P. Davis.
38	7 $\frac{1}{8}$	23	29	Central India	Lieut. R. M. Brind.
37 $\frac{7}{8}$	9 $\frac{1}{4}$	25 $\frac{3}{4}$	...	Kumaon	Officers' Mess, 3rd Gurkhas.
37 $\frac{3}{4}$	8 $\frac{1}{2}$	...	...	Assam	E. C. Stuart Baker, F.Z.S.
36 $\frac{3}{4}$	6 $\frac{1}{4}$	33 $\frac{1}{2}$	30	Kumaon	Lt.-Col. C. E. Nichol.
35 $\frac{3}{8}$	9 $\frac{1}{4}$	21 $\frac{3}{8}$	27 $\frac{1}{2}$	Nilgiris	N. L. Sheldon.
35	9	32 $\frac{1}{4}$	...	Mt. Abu	Col. L. L. Fenton.
35	7	38	40 $\frac{3}{4}$	Philibit	Lt. C. T. Shepherd.
34 $\frac{1}{2}$	8	19	...	Ditto	Ditto.
33 $\frac{1}{2}$	6	32	...	Kathiawar	Ditto.

## MALAY VARIETY.

Length. Inches.	Girth. Inches.	Tip to tip. Inches.	Spread. Inches.	Place.		REMARKS.
33½	...	...	...	Bukra Duar	...	Lieut. W. L. Hogg.
32	...	...	...	Ditto	...	Ditto.
31½	...	...	...	Ditto	...	Ditto.
30	...	...	...	Ditto	...	Ditto.
27½	5 $\frac{3}{8}$	26	26	Upper Burma	...	Lieut. C. Elliott.

## THE SPOTTED DEER OR CHITUL.

*Cervus Axis.* Native names : *Chital*, (stag, *Jhank*, hind, *Chital*) ; *Chatidah*, Bhagalpore ; *Boro Khotiya*, Beng. ; *Buryia*, Gorakhpur ; *Lipi*, Gond. ; *Sarung*, *Jate*, Can. ; *Dupi*, Tel. ; *Paliman*, Tam. ; *Chital*, Kurku ; *Pasu*, Kathiawar ; *Sargar*, Canara.

*Habitat.*—Throughout India, from the lower spurs of the Himalayas extending from the Sutlej to Nepal and southwards. It is not found in Sind, the Punjab plains and Assam; is common in the Sunderbunds and throughout Orissa, Central India and Mysore.

*Period of gestation.*—Eight months.

*Description.*—Size moderate; no mane; long pointed tail; horns normally with three tines, a brow antler and two upper tines, of which the outer is always the longer. In colour rufous fawn, spotted throughout with white, a dark stripe down the back, bordered by a row of white spots; chin, throat, belly inside of limbs and underneath tail white. Face dark brown; head brownish and unspotted.

It haunts bushes, trees and bamboo jungle on hilly ground and alluvial plains and never ranges far from water. It is gregarious at all times of the year, feeds morning and evening as a rule, drinks between 8 and 10 A.M., grazes and browses, swims well. Fawns are born almost throughout the year, and there is the greatest irregularity in the shedding of the horns, though they are mostly shed between October and March.

*Measurements.*—Average height at shoulder, 32 inches; average horn measurement, 30 inches; circumference of beam,  $3\frac{1}{2}$  inches; length, 4 feet 6 inches; weight, from 200 to 250 lbs.

*Record Heads.*—The largest heads of which I have any particulars are two of 39 inches, one shot by Captain F. Pope of the Northamptonshire Regt. near Jubbulpore in January 1907, and the other by Major W. Radcliffe. Two heads of over 38 inches are also recorded below. Blanford measured one of  $38\frac{3}{4}$

inches and several of 38 inches are mentioned by, among others, Forsyth, the late A. M. Markham ("Rohilla"), the Maharajah of Pertabgarh. Horns of over 35 inches are not often got now, but 34 inches is considered a good head. A specimen in the collection of the Bombay Natural History Society measures 35 inches by  $4\frac{3}{4}$  inches in girth; the best in the Indian Museum (Calcutta) is  $34\frac{1}{2}$  inches, shot in the Mirzapore district by Mr. Cockburn. The British Museum has a 36 inch head.

Length. Inches.	Girth. Inches.	Tip to tip. Inches.	Spread. Inches.	Points $5+4$	Place.	REMARKS.
39	$4\frac{1}{4}$	$15\frac{1}{4}$	...	8	Jubbulpore	Capt. F. Pope, North Hants.
39	$5\frac{1}{4}$	25	...	9	N. India	Major W. Radcliffe. [ Regt.
$38\frac{1}{2}$	$4\frac{7}{8}$	24	...	...	Eastern Berar	A. Higgins.
$38\frac{1}{2}$	...	$25\frac{3}{8}$	$30\frac{1}{2}$	$3+3$	C. P. ....	Lieut. P. Beaumont.
$38\frac{1}{4}$	$5\frac{3}{4}$	$20\frac{3}{8}$	26	8	.....	Lieut. R. M. Bind.
38	5	$20\frac{5}{8}$	...	$4+4$	Kumaon Terai	Lt. C. J. Shepherd, 53rd Sikhs F. E.
38	...	...	...	...	.....	Forsyth's <i>Highlands of Central India</i> .
38	$4\frac{3}{4}$	...	...	$3+4$	Chitrakote	Capt. A. I. R. Glasfurd.
$37\frac{1}{2}$	$4\frac{1}{2}$	...	...	$3+4$	Wun, Berar	Ditto.
$37\frac{1}{2}$	$4\frac{1}{2}$	14	$22\frac{1}{2}$	$3+3$	U. P. ....	J. C. Faunthorpe.

Length.	Girth.	Tip to tip.	Spread.	Points	Place.	REMARKS.
Inches.	Inches.	Inches.	Inches.			
37	4 $\frac{1}{2}$	24 $\frac{1}{2}$	30 $\frac{1}{2}$	5+5	U. P. ...	J. C. Faunthorpe.
36 $\frac{3}{5}$	...	19 $\frac{1}{2}$	...	...	Terai	Officers' Mess, 3rd Gurkhas.
36 $\frac{1}{2}$	4 $\frac{1}{2}$	27 $\frac{1}{4}$	...	...	Eastern Berar	A. Higgins.
36 $\frac{1}{2}$	5	22	27 $\frac{1}{2}$	4+4	U. P. ...	J. C. Faunthorpe.
36 $\frac{1}{4}$	4	18	25	...	Central India	Lieut. R. M. Brind.
35	4 $\frac{1}{2}$	8 $\frac{1}{4}$	16 $\frac{3}{4}$	4+3	U. P. ...	J. C. Faunthorpe.
35	...	16	...	...	Taptee River	N. C. Macleod.
35	...	...	...	6+7	Naini Tal	E. D. Nuan.
34 $\frac{3}{4}$	5 $\frac{1}{4}$	30 $\frac{1}{2}$	33	3+3	U. P. ...	J. C. Faunthorpe.
34 $\frac{1}{4}$	6	21 $\frac{3}{4}$	26 $\frac{1}{2}$	4+4	Kumaon ...	Lt.-Col. C. E. Nichol.
34	4 $\frac{1}{2}$	...	27 $\frac{1}{2}$	5+4	Ditto ...	Lt.-Col. C. E. Nichol.
34	5 $\frac{1}{2}$	...	...	...	Ditto ...	Col. A. E. Ward.
33	...	...	...	...	Korea C. P.	Capt. A. Mactavish
33	...	...	...	6+4	S. Madras ...	3rd Brahmans
32	3 $\frac{3}{4}$	22	...	...	N. Canara ...	Capt. H. R. Milvain.
32	3 $\frac{3}{4}$	21 $\frac{1}{2}$	...	...	S. Madras ...	Major C. M. Priestley.
						Capt. S. H. Charrington.

## THE HOG DEER.

*Cervus Porcinus.* Native names : *Para*, Hind.; *Dodar*, Rohilkund ; *Kharlaguna* and *Sugoria*, Nepal ; *Nutrini harin*, Beng.; *Darai*, Burma.

*Habitat.*—From Sind and the U. P., eastwards to Assam, Sylhet, and as far as Burma.

*Period of gestation.*—Eight months.

*Description.*—Of small size with short legs ; small horns on longish pedicles, the brow antler meeting the beam at an acute angle, upper tine exceeding the inner. It is brown in colour with paler lower parts, ears white inside and tail white beneath. The young up to six months are spotted throughout.

It keeps entirely to alluvial plains and abounds in grass and bush jungle. It is not gregarious, is ungainly in its movements, and an awkward runner. The bucks drop their horns in April.

*Measurements.*—Average height about 24 inches ; length from muzzle to root of tail, 42 inches ; horns, 12 inches ; weight, 90—100 lbs.

*Record Heads.*—The Bombay Natural History Society has a  $20\frac{3}{4}$  ins. specimen and there is an almost equally fine one of 20 ins. in the Indian Museum (Calcutta) shot in Martaban and presented by the late Lieut. R. C. Beavan. "Dee A" gives in the *Asian* (9-6-93) the following measurements:—(1) Right horn, 21 ins.; left,  $20\frac{3}{4}$  ins.: (2) Right horn, 26 ins. ; left,  $20\frac{3}{8}$  inches, which latter is, I take it, the record. Horns of 18 and 19 inches have often been recorded ; anything above 17 inches is regarded as good in these days.

Length.	Girth.	Tip to tip.	Place.	REMARKS.
Inches.	Inches.	Inches.		
24	7	14½	Burma	H. Wheldon.
23½	...	...	Prome Burma	H. Wheldon.
21½	7½	11½	Burma	H. Wheldon.
21	...	...	Prome Burma	H. Wheldon.
20½	...	...	Meerut (Kadir)	Lt. R. V. Pollok (speared.)
20	6¾	13¼	Burma	H. Wheldon.
19½	...	...	Prome Burma	H. Wheldon.
19¼	6¾	14¾	Burma	H. Wheldon.
19	6	9	Burma	H. Wheldon.
19	...	...	Prome Burma	H. Wheldon.
19	...	...	Meerut (Kadir)	Major L. E. Kennard (speared.)
18½	3½	...	Myitkiyina	O. H. L. Napier.
18½	...	...	U. P.	Major C. M. Priestley.
18	4½	13½	U. Burma	J. C. Faunthorpe.
17½	...	9¾	.....	Capt. G. P. Evans (11 ins. spread.)
17½	2½	...	Myitkiyina	O. H. L. Napier.
17½	5	12	Meerut (Kadir)	W. S. Thom.
17½	3½	12¾	Kumaon	Capt. S. H. Charrington (speared).
17	...	...	Burma	Major N. Woodyatt.
16½	4¾	9½	Burma	W. S. Thom.
16	5	12	Burma	W. S. Thom.
16	3¾	16	Kumaon	Lt.-Col. C. E. Nichol.
15½	...	...	Meerut	Capt. S. H. Charrington.

## THE MUSK DEER.

*Moschus Moschiferus*.—Native names: *Custura*, *Mushknafa*, Hind.; *Rao*, *Roos*, Kashmir; *La*, Tibetan; *Ribio*, Ladak; *Bena*, Gurhwal and Kumaon.

*Habitat*.—Throughout the Himalayas.

*Period of gestation*.—About 160 days, usually one at birth.

*Description*.—Hair of peculiar texture—like pith, long, coarse, brittle and wavy. Hind legs much longer than fore legs, ears large and tail very small. The canine teeth of the male are abnormally developed, sometimes reaching 3 inches. Of rich dark brown colour with paler lower parts and white inside thighs and on chin and throat: the winter coat is almost white. The musk pod is an abdominal gland containing about an ounce of musk. Flesh excellent and free from any musky flavour.

It is solitary, frequents woody slopes and steep places. It is not shy. Its usual progression is a series of bounds.

*Measurements*.—Height at shoulder, 20 inches; at croup, 22 inches; length, nose to rump, 36 inches; weight about 20 lbs.

Length of Tusk	Place.			REMARKS.
Inches.				
3 $\frac{3}{8}$	Gurhwal	...	...	Lieut. G. W. Burton.
3 $\frac{5}{8}$	Ditto	...	...	Ditto.
3	Kumaon	...	...	Capt. G. K. Channer.
3	Kashmir	...	...	Capt. S. H. Charrington.

### THE INDIAN MOUSE DEER OR CHEVROTAIN.

*Tragulus Meminua*. Native names : *Pisura*, *Pisai*, Hind., Mahr. ; *Mugi*, Central India ; *Turi-maoo*, Gond. *Jitra Hurin*, Beng. ; *Gandwa*, Oorya ; *Kurupandi*, Tel. ; *Kurampani*, Tam.

*Habitat*.—Southern Indian forests up to 2,000 feet. Orissa, Chota Nagpore, the Central Provinces and along the Western Ghats to North of Bombay.

*Description*.—The upper parts are brown, minutely speckled with yellow ; sides spotted with white or buff, the spots elongating into longitudinal bands, lower parts white, three white strips on the throat.

It never ventures into the open, but keeps among rocks. It breeds at the close of the rains, is timid and easily tamed.

*Measurements*.—Average height at shoulder, 10 inches ; length from nose to root of tail, 18 inches ; weight, 5 to 6 lbs.

## THE INDIAN WILD BOAR.

*Sus cristatus*, *S. Scrofa* or *S. Indicus*. *Soor*, Hind.; *Dukur*, Manr., Guzerat, Sind; *Hikh*, Baluch.; *Paddi*, Gond.; *Katupani*, Tam.; *Hundi, mikka*, Can.; *Sukeram*, Mal.; *Banel*, Nepal; *Ok*, Manipur; *Tauwet*, Burma.

*Habitat*.—Throughout India and Burma.

*Period of gestation*.—Four months ; 4 to 6 at a litter. The colour is black mixed with rusty brown or grey, old boars greyish ; the young are light brown with longitudinal dark brown stripes. A crest along the back, bristles above, coarse hair below, and a tuft of bristles on the rump ; tail extending nearly to hocks, body very scantily haired.

It infests high grass and crops, associates in "sounders," feeds morning and evening, wallows much, is partial to marsh, roots continuously, and is extremely destructive to crops. It will also devour carrion, fish, and most filth. Its speed is considerable over a short distance. It is the most courageous of all animals and will fight to the death, yet seldom attacks without provocation. It frequently builds mound-like shelters of grass in which it leaves the young, and it is the most prolific of the Ungulata.

*Measurements*.—Average height at shoulder, 31 inches ; average length of tusk, 7 inches ; length from nose to vent 5 ft.; weight from 200 to 300 lbs. The biggest boar on record is that shot on the 25th November 1907, at Khummoo

(Kashmir) by General Rajah Sir Amar Singh : here are its measurements and weight.—Height at shoulder 39 ins., length from nose to vent, 68 ins., girth 61 ins., circumference of collar, 50 ins., tushes  $5\frac{1}{2}$  ins., weight, 700 lbs. !!

In January 1907 Mr. Macneil Ferguson, of Berhampore in Bengal, killed a very lean, lanky boar that weighed 278 lbs. and stood just 39 inches at the shoulder. Major Priestley's boar, mentioned further on, runs this close in height and weighs a good many pounds more. But these pale into insignificance beside Sir Amar Singh's monster.

I take the following list of weights and measurements from " Raoul's" *Reminiscences of Pigsticking* :—

Height. Inches.	Length. Inches.	Girth. Inches.	Weight in lbs.
37½	61	51	213
37	62	47	196
36	58	42	162
35	60	44	159
35	60	43	185
34	57	42	160

"Chicago," writing to the *Asian* (11-10-98) gave the following details of a few boars killed on the Brahmapootra Churs :—

No. of Pig.	Date of killing.	MEASUREMENTS.			
		Height. Inches.	Length. Inches.	Girth. Inches.	Weight in lbs.
3	Dec. 24th	33½	...	...	...
6	„ 29th	34	...	...	...
8	Jany. 23rd	33½	...	...	...
13	Feby. 20th	31	53½	...	220
14	„ 27th	31	54½	43½	218
16	March 3rd	31½	59	45½	228
18	„ 3rd	32½	59	44	240

I am indebted to Capt. S. H. Charrington for the following details :—

Height. Inches.	Weight in lbs.	Tush Measurement.		Locality.	
34	...	...	...	Muttra Tent Club.	Major P. Hambro.
33	240	...	...	Ditto	Col. W. E. Peyton.
34	300	...	...	Meerut Tent Club.	Capt. L. A. Smith.
34	260	...	...	Ditto	Capt. Jones.
34	230	...	...	Ditto	Major S. D. Browne.
31	251	...	...	Ditto	Capt. A. E. Wardrop.
...	...	12"	...	Ditto	Capt. S.H. Charrington.
...	...	7½"	...	Ditto	
...	...	10½"	...	Ditto	Lt. A. F. Brooke.
...	...	8¾"	...	Ditto	Capt. Stewart.

The record tush is  $14\frac{3}{4}$  ins. on the authority of the late Mr. H. P. R. Carter ("Smoothbore") who published details of it in *The Field* of 19-1-95. It was malformed and had grown almost into a circle. "Raoul" showed me a similar tush some years ago which must have been about 11 inches.. Captain F. R. Forbes, Royal Irish Regt., Indore, has recorded a tush of 12 ins. There is in the

possession of the Bombay Natural History Society a tush of over 10 inches, and I remember many years ago seeing two tushes of 10 inches which originally belonged to that mighty Danish hog-hunter, Reyling, whose pigsticking fame spread throughout Dinajepore, Rungpore and the surrounding districts in the sixties. Major C. Priestley speared at Nagpur a magnificent boar with 9 inch tushes, 38 in. at shoulder, 60 in. girth, 66 in. length and which scaled 350 lbs. Major P. Lea Birch, R.A., gives 9 inches and  $8\frac{1}{2}$  inches got at Ooty, as his best; Capt. S. H. Charrington, Meerut, records a tush of  $8\frac{7}{8}$  inches; Capt. A. I. R. Glasfurd gives 9 inches as his best; Mr. C. B. Muggridge's two best Upper Burma specimens had  $9\frac{1}{4}$  in. tushes, and his next best was  $8\frac{3}{4}$  inches, and Lieut. W. L. Hogg writes from Cawnpore of a  $7\frac{3}{4}$  inch specimen in his possession.

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### THE PIGMY HOG.

*Sus Silvanius*.—Native names: *Sano Banel*, Nepal; *Chota Soor*, Hind.

*Habitat*.—Nepal, Sikhim and Bhootan.

*Description*.—In colour, shape, and habits, this animal is very similar to the Indian wild boar. It is rarely seen and only leaves the forests at night.

*Measurements*.—Average height, 11 inches; length from snout to vent, 26 inches; weight, 17 lbs.

## THE COMMON INDIAN HARE.

*Lepus Ruficaudatus* or *Lepus Timidus*. Native names : *Khargosh*, Hind.; *Kharag*, Beng.; *Morlol*, Gond.; *Koalee*, Kurku; *Kaulhai*, Santal.

*Habitat*.—From the foot of the Himalayas to the Godavery, the Deccan, Assam and Bengal.

*Description*.—Light brown mixed with black on back and face, breast, and limbs rufous ; chin, throat and lower parts white ; tail rufous brown above, white below, ears very thinly clad and bordered with black near the tips.

It is found in waste lands and dry cultivation among grass and bushes. It is usually shot and occasionally courséd, and when pursued often seeks shelter in foxes' holes or other burrows.

*Measurements*.—Head and body, 18—20 inches ; tail, 4 inches ; weight, 4 to 5 lbs.; males are smaller than females

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## THE BLACK NECKED HARE.

*Lepus Nigricolis*. Native names same as for common hare.

*Habitat*.—South of the Godavery and the Nilgherries.

*Description.*—Colour above, brown and black mixed, except a dark or black patch from the ears to the shoulders. Brown tail with black tip; under parts white; ears thinly clad.

Its habits and haunts are the same as those of the common Indian hare.

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### THE SIND HARE.

*Lepus Dayanus.* Native names: *Sassa*, *Seher*, Sind.

*Habitat.*—Sind and Cutch, the Indian desert and the Dehrajat of the Punjab.

*Description.*—Greyish brown above, breast and limbs pale reddish; lower parts white. Tail blackish brown. Face stripes whitish, around eyes white, ears thinly clad, fur very soft. Habits and haunts similar to those of the common hare from which it is chiefly distinguished by its soft fur.

*Measurements.*—Head and body, 17 inches; tail, 4 inches.

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### THE BURMESE HARE.

*Lepus Peguensis.* Native names: *Yun*, *Phu-goung*, Burma.

It is found throughout Burma, and in colouration much resembles the Indian hare, but is distinguished by a large dark terminal patch on the posterior surface of each ear. It measures 21 inches; tail, 4 inches.

## THE HISPID HARE.

*Lepus Hispidus.* Native names same as for the common hare.

*Habitat.*—The foot of the Himalayas, from Gorakhpur to Assam, Rajmahal, Dacca and Tipperah.

*Description.*—Ears very short (shorter than the skull), eyes small, fur coarse, hind legs short, teeth and claws large, colour dark brown above, dirty white below. Breast darker than abdomen. Little is known of its habits; it frequents long grass, bamboos, etc., is not gregarious and is said to burrow. It feeds on roots and the bark of trees.

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## THE CROCODILE.

Indian crocodiles are represented by two genera,—the *gavialis*, (should not this be *Gharialis*?) which has an extremely long snout carrying 27 teeth on each side of the upper jaw, and *crocodilus*, which has a moderately long and snub snout with from 17 to 19 teeth on each side of the upper jaw. There are no alligators in India.

*Gavialis Gangeticus.* Native name, *Gharial*, and erroneously styled the “fish alligator.” Reaches 25 feet in length and feeds entirely on fish. It is

dark olive in colour, the young being paler and spotted with brown. The neuchal and dorsal scutes are composed of 21 or 22 transverse series and form a continuous shield. The fingers are webbed, and there is a crest on the outer edge of the forearm, leg and foot. The snout is usually four times as long as the breadth of the skull at the base. It infests the Indus, Ganges, and Brahmaputra, and most of the big streams in Eastern Bengal, Orissa and Arakan.

*Crocodilus Porosus*.—The Mugger. The snout is about twice as long as the breadth at the base of the skull. Four large neuchal scutes with smaller ones on each side ; the dorsal shield forms sixteen or seventeen transverse and usually six longitudinal series. Scales on sides and limbs fairly smooth. Fingers and toes partially webbed with a serrated fringe on the outer edge of the leg. The adult is dark olive above, pale below ; the young are paler and spotted. It inhabits the rivers of Bengal, the East Coast of India and Burma, enters salt water, and is frequently seen at sea. It feeds on human beings, animals, fish and carrion, and often exceeds 30 feet in length, and has 17 to 19 upper teeth on each side.

*Crocodilus Pelustris*, also the Mugger. Its habitat is practically the same as that of *C. Porosus*, and its general form, arrangement of scales and colour are very similar, but it can easily be distinguished from *Porosus* by its shorter

snout and by having *five* teeth on each pre-maxillary bone, while the latter has but *four*.

Crocodiles are by no means wary and permit a close approach. They feed chiefly at night and bask in the day.

If well placed a single shot bags them ; but the brain of a crocodile is very small, and unless the bullet penetrates it or breaks the neck, it frequently, though mortally wounded, dives and may not be recovered for 24 hours. A .450 Express is the best weapon, and a hollow bullet with a solid base gives the greatest shock effect.

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### THE GAME DESTROYERS.

With the marked decrease in game in several parts of India which has led to the adoption of active measures for preservation in several large areas, and with the ever-increasing efficiency in firearms, the increase in native professional shikaries, and the extension of cultivation, it has become urgently necessary for sportsmen to turn their attention to the game destroyers of India. It is not suggested that a war of extermination should be waged against every species, but it is hoped that sportsmen will take such steps—chiefly by shooting at sight the natural foes of Indian game—as will tend towards the restoration of that

balance of nature which the above and other causes have so seriously disturbed. Opinions may differ as to what may be properly considered "vermin," the question being largely influenced by the sort of game a sportsman chiefly pursues; but as the matter cannot be discussed in a compilation of this kind, it has been considered sufficient to give a list of the chief game destroyers and leave them to be dealt with at the discretion of the sportsman.

*The Leopard* is one of the greatest foes to the preservation of deer which, largely owing to his depredations, have been almost, if not quite, exterminated in many parts of India. In any properly considered scheme for preservation by the establishment of sanctuaries, close seasons, &c., the Leopard must therefore be kept within reasonable numbers; and of all the leopards the Ounce or Snow Leopard (*Felis uncia*) is the most inveterate and successful destroyer of the game to be found in the higher elevations of the Himalayas.

*The Smaller Cats.*—There can be no doubt as to the propriety of classing all the smaller *Felidæ* as vermin in every sense of the term, and in this category are included all the cats mentioned earlier in this book.

*Wolves and Wild Dogs.*—These destroy an immense quantity of game, and of all the pests which operate against successful big game shooting, there is none

greater than the Wild Dog which should remorselessly be destroyed whenever and wherever seen. The Lynx and the Jackal are included under this head.

*Civets and Mongooses*—The viverridæ destroy large quantities of feathered game.

*Martins and Weasels* are active game destroyers.

*The Crow*.—Both the jungle and urban variety are arrant egg thieves and chick destroyers.

*The Owls* of almost every variety are ditto, differing.

*The Eagles, Buzzards and Falcons* are usually deserving of a cartridge, for they prey largely on birds and pigeons; though we must not forget that their partiality for rats, snakes and other small and noxious animals is a recommendation to mercy which should carry some weight.

It has not been considered necessary to give detailed descriptions of these game destroyers, and as a matter of fact most of them are fairly well known to sportsmen: but in our attitude towards them, it is fairly safe to adopt as our guide the native saying “*paihla lat, pichi bat*,” and slay first and enquire at leisure if so inclined.

# THE LAND GAME BIRDS.

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## THE TIBETAN PIN-TAILED SAND GROUSE.

*Syrrhaptes Tibetanus.* Native name, *Kuk*, Ladak.

*Habitat.*—Ladak and the upper portions of the Sutlej Valley.

*Description.*—Male—front of head white ; sides of head, throat and collar yellow ; the crown, neck, mantle and chest white with black bars. Back, rump and tail-coverts buff with black markings. First ten quills of the wing black, tail buff and chestnut, barred with black and tipped with white. A pale grey band across the breast.

The female is more coarsely barred with black throughout, the grey breast band is wanting, the breast being barred with black. In other respects it resembles the male.

Length, 16 inches ; wing, 10 inches ; tail, 8 inches.

It is found on barren plains and undulating desert, is shy in the mornings and evenings, but not so in the heat of the day. It drinks morning and evening when it is particularly noisy.

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### THE EASTERN PIN-TAILED SAND GROUSE.

*Pteroclorus alchatus.* Native name, *Ka-at*.

*Habitat.*—A winter visitor to the Punjab and Sind.

*Description.*—Male—back and hackles olive buff with yellowish patches; crown of the head grey, sides bright buff, forehead and neck greyish buff, chin and throat black. First ten quills of the wing grey; next quills largely mixed with white. Tail dark grey, tipped with white. Rump and tail-coverts barred black and yellow, belly and sides of body white. The female resembles the male, but has the throat white.

Length, 15 inches; wing, 8 inches; tail, 6 inches; legs, green; irides, brown; bill, greenish brown; weight, 12 oz.

It is shy, very wild and associates in large flocks, feeding on seeds, insects and leaves.

## THE COMMON PIN-TAILED SAND GROUSE.

*Pteroclorus exhaustus.* Native names : *Bur-titir*, *Kumar-titir*, *Kuhar*, Hind. ; *Bootabur*, *Batibun*, Sind ; *Pokundi*, Mahr. ; *Jampalonka*, Tel. ; *Kal Kondari*, Tam.

*Habitat.*—A permanent resident in Sind, the Punjab, Behar, Chota Nag-pore, and southwards to Mysore.

*Description.*—Male—crown and upper plumage fulvous brown; sides of head, throat and neck ring light buff. First five quills of wing black; next five black tipped with white. Tail, fulvous, with black tips. Chest pinkish buff with a narrow black band, lower breast buff, belly and sides chocolate brown, feathers under tail creamy white.

Female—upper feathers of chest, upper breast fulvous, spotted black. Tail feathers black, barred, and tipped fulvous, ends of middle feathers black. First five quills of the wing black, next five barred with white, belly barred with chocolate, brown and fulvous.

Length, 13 inches ; wing, 7 inches ; tail,  $5\frac{1}{2}$  inches ; legs, bluish ; irides, brown ; bill, bluish ; weight, 10 oz.

They affect open sandy country with ploughed lands and fallow fields between, are extremely difficult to see on the ground, not particularly wary,

occasionally assemble in thousands, and drink about 4 P.M. Breed throughout the year, laying three eggs in the bare sand.

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### THE SPOTTED PIN-TAILED SAND GROUSE.

*Pteroclorus senegaloo.* Native names : *Nundu Katinga Gutu*, Sind.

*Habitat.*—Common in Sind in winter and less frequent in the Punjab and Rajputana.

*Description.*—Male—upper plumage brown, tail-coverts yellow, broad grey band on each side of the head meeting behind the crown. Wing quills brown with black shafts, tipped with black. Throat, sides of the head and neck bright yellow. Lower plumage brown with a black patch on the middle of the belly, middle tail feather brown tipped with black; others broadly tipped with white. Feathers under the tail white.

The female resembles the male except that the whole upper plumage, sides of the neck and chest are thickly spotted black.

Length, 13 inches ; wing,  $7\frac{1}{2}$  inches ; tail, 5 inches ; legs, bluish ; irides, brown ; bill, bluish ; weight, 12 oz.

## THE BLACK-BELLIED SAND GROUSE.

*Pterocles arenarius.* Native names : *Bhut titur*, *Bur titur*, *Bakht*, Hind. ; *Panchur*, *Kurmor*, Peshawar ; *Katinga*, Sind.

*Habitat.*—A winter visitor, arriving in October and leaving in March ; it is found throughout the U. P., the Punjab, Rajputana, Nepal, and the Northern portion of Central India, Khandesh and Gujerat.

*Description.*—Male—upper plumage mixed dark grey and fulvous, with a large patch of fulvous on the wing. Crown of head and neck brownish grey, wing quills dark slaty. Tail feathers fulvous, barred with black and grey and broadly tipped with white. Throat, chestnut, ending in a black band ; breast grey with a black band across the middle ; belly and sides of body black ; thighs and feathers under tail white.

Female—closely resembles the male except that the fore neck and upper breast are spotted.

Length, 14 inches ; wing, 9 inches ; tail, 4 inches ; legs, grey ; irides, brown ; bill, bluish ; weight, 20 oz.

They are fond of ploughed land and wide, open, sandy plains ; they occur in large flocks, sometimes in countless multitudes, feed morning and evening, and take a mid-day siesta like all grouse.

## THE CORONETTED SAND GROUSE.

*Pterocles coronatus*. Native name : *Katinga*, Sind.

*Habitat*.—A comparatively rare visitor to Sind.

*Description*.—Male—sides of forehead black, middle of forehead white, crown cinnamon colour, completely surrounded by a broad coronet of grey ; throat, sides of head and neck collar, yellow. Upper plumage brown. Wing quills dark brown, middle tail feathers fulvous, the other feathers fulvous with black bars and white tips. Belly and sides buff, breast tinged with grey, feathers under the tail white.

Female—every portion of upper plumage fulvous, barred with dark slaty. The entire throat is pale yellow. In other respects it is like the male.

Length, 11 inches ; wing, 7 inches ; tail, 3 inches. Weight, 8 oz.

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## THE INDIAN PAINTED SAND GROUSE.

*Pterocles fasciatus*. Native names : *Pahari bhut titur*, *Bhut bun*, U. P.; *Calki*, Belgaum ; *Handeri*, S. India ; *Sanda palouka*, Tel. : *Butma*, Kurku ; *Kakranj*, Gond.

*Habitat*.—A permanent Indian resident, found chiefly near dry hill or bushclad uplands and, unlike other grouse, it often affects thick cover.

*Description.*—Male—black band on forehead with white in front and behind it, black spot over eye, crown buff mottled with black. Sides of head, throat, and neck light buff terminating below in two broad bands of chestnut and yellow. Upper plumage black, barred with buff on the back, rump and tail, with white on the wings which exhibit a large buff patch. Wing quills dark brown. Belly and sides of body barred with equal bands of black and white, feathers under the tail buff barred with black. This bird has a slow, short flight, quite different from the other grouse.

Female—resembles the male except that there is no black band across the forehead, while the lower plumage is barred black and pale fulvous, the black bars being narrower than the fulvous. Length,  $10\frac{1}{2}$  inches; wing,  $6\frac{1}{2}$  inches; tail,  $3\frac{1}{2}$  inches; legs, yellowish; irides, brown; bill, reddish brown. Weight,  $7\frac{1}{2}$  oz.

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### THE CLOSE-BARRED SAND GROUSE.

*Pterocles Lichtensteini.* Native names unknown.

*Habitat.*—Has only been found in Sind, west of the Indus. It is very rare.

*Description.*—Very closely allied to the Painted Sand Grouse, both male and female resembling it in plumage, while its habits are precisely the same.

It is usually found solitary, in pairs, or at most three pairs together. Length,  $10\frac{1}{2}$  inches ; wing, 7 inches ; tail, 3 inches ; legs, yellow ; irides, brown ; bill, brown. Weight, 8 oz.

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### THE BUSTARD QUAIL.

*Turnix Pugnax.* Native names : *Rulu, Gundlu, Hind* ; *Pured* (female), *Koladu* (male), Tel. ; *Kurung-kadeh* (female), *au-kadeh* (male), Tam ; *Kare haki*, Canarese ; *Tiniok*, Bhotan ; *Ngon*, Burmese.

*Habitat*.—Throughout the Indian Peninsula (except Sind), from Nepal to Travancore, through Burma to Tennasserim.

*Description*.—Male—upper plumage, rufous, black and buff ; chin and throat, whitish ; lower plumage, buff ; fore neck and breast strongly barred black.

Female—resembles male, but has the whole chin, throat and fore neck black. Length,  $6\frac{1}{2}$  inches ; wing,  $3\frac{1}{2}$  inches ; tail, 1 inch. Legs, bluish ; irides whitish ; bill, lead colour. Weight,  $2\frac{1}{2}$  oz. It frequents open country and the outskirts of forests, scrub and waste lands. It occurs singly or in pairs. Rises when almost trodden on, disappears into cover after a short flight ; useless to try and flush it again. Female has a low note ; the male is silent.

## THE LITTLE BUTTON QUAIL.

*Turnix Dussumieri.* • Native names : *Ghinwa-lowa, chota lowa, dabki, chota batair*, Hind. ; *libia*, Purnea ; *Tatu bataira*, Sind ; *Durwi*, Mahr. ; *China dabba gunduloo*, Tel. ; *San gunduloo*, Orissa ; *Ngon*, Burma.

*Habitat.*—Throughout India.

*Description.*—Male—upper plumage, pale chestnut, finely barred with black. Wing coverts spotted chestnut and black. Pale stripe down the crown. Tail feathers margined buff. Throat, whitish ; breast, rufous, speckled brown or blackish. Belly, plain buff. Sexes alike. Length, 6 inches ; wing, 3 inches ; tail,  $1\frac{1}{2}$  inches ; legs, pale slaty ; irides, yellow ; bill, pale slaty. Weight,  $1\frac{1}{2}$  oz. It frequents open grass and scrub country and weedy places.

## THE INDIAN BUTTON QUAIL.

*Turnix Tanki.* Native names : *Lawa*, Upper India ; *Pedda dubba gunduloo*, Tel.

*Habitat.*—A permanent resident throughout practically the whole Indian Peninsula.

*Description.*—Male—black crown. Upper plumage, greyish brown, mottled black, rufous and buff. Throat, whitish ; fore neck and breast, rufous, with black spots at the sides ; tail feathers, plain and not margined.

Female—resembles the male, but has a rufous collar. Length, 6 inches ; wing, 3 inches ; tail, 1 inch ; legs, yellow ; irides, white ; bill, yellow. Weight,  $1\frac{1}{2}$  oz.

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### BLANFORD'S BUTTON QUAIL.

*Turnix Blanfordi*. Native name : *Ngon*, Burma.

*Habitat*.—Countries east of the Bay of Bengal, southwards to Tenasserim, eastwards to Siam, and it is found on hills and plains.

*Description*.—Closely resembles the Indian Button Quail ; the female has a rufous collar, the male being without. Length 7 inches ; wing, 4 inches ; tail,  $1\frac{1}{2}$  inch ; legs, yellow ; irides, white ; bill, brown with yellow near the gape. Weight,  $2\frac{3}{4}$  oz. The commonest Burmese Quail, it affords poor sport, is difficult to flush, flies a little way and can never be put up again.

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### THE GREY QUAIL.

*Coturnix coturnix*. Native names : *Batair*, *Bara Batair*, *Gagus Batair*, Upper India ; *Batairoo*, Sind ; *Buttree*, Bengal ; *Soipol*, Manipur ; *Botah*, Assam ; *Bur Gaiya*, Poona ; *Burli*, Belgaum ; *Gogri-yellichi*, Tel.; *Peria-kadeb*, Tam.; *Sepale-Haki*, Canarese.

*Habitat.*—A winter visitor, very common in the north, less so in the south ; it arrives in September and leaves in April.

*Description.*—Male—upper plumage black, grey and rufous mixed, with distinct yellowish streaks. First ten quills of the wing, brown. Throat dark brown or blackish succeeded by a white band ; sides of the throat pure white. Breast buff with narrow white streaks. Sides, bright buff with black marks and white streaks.

Female—upper plumage resembles that of the male, but the throat is pale buff without any long pointed feathers on the sides of the chin and upper throat. Entire lower plumage pale buff ; upper breast thickly spotted with black and fine white streaks. Length,  $8\frac{1}{2}$  inches ; wing,  $4\frac{1}{4}$  inches ; tail, 2 inches ; legs, flesh colour ; irides, brown ; bill, brown. Weight,  $4\frac{1}{2}$  oz.

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### THE JAPANESE QUAIL.

*Coturnix Japonica.* Native name : *Ngon*, Burma.

*Habitat.*—Burma.

*Description.*—In colour, markings and size, it resembles the Grey Quail, but it is more richly coloured. In the male, the whole throat and sides of the head are brick-red without any black bands ; in the female, the throat is plain buff.

## THE BLACK-BREASTED OR RAIN QUAIL.

*Coturnix Coromandelica.* Native names, same as for the Grey Quail.

*Habitat.*—Widely distributed throughout India, Assam, Pegu and Burma.

*Description.*—Male—upper plumage, wings and tail mixed black, brown, grey and rufous with distinct yellow streaks. First ten wing quills plain brown, on both webs. Crown blackish, mottled with brown, yellow band down centre ; white band over each eye ; chin and throat black. A white and then a black gorget succeeds this. Sides of the neck russet brown ; breast, black ; belly, pale buff.

Female—very similar to female of Grey Quail, its chief distinction being the pale brown colour of the outer web of the first ten wing quills. Length, 7 inches ; wing,  $3\frac{1}{2}$  inches ; tail,  $1\frac{1}{2}$  inch ; legs, pink ; irides, brown ; bill, bluish green. Weight, 3 oz.

It is invariably found in open grass and cultivation ; it avoids forests, heavy rain and flooded country. It is found in Burma in the rains. It is not shy and is found singly or in pairs.

## THE BLUE-BREASTED QUAIL.

*Excalfactoria Chinensis*. Native names : *Kaueli*, Nepal ; *Burli*, Mahr. ; *Ngon*, Burma.

*Habitat*.—A rare bird, but more common in Lower Bengal and Burma.

*Description*.—Male—It is easily distinguished from other quails by its blue breast and sides, and bright-chestnut belly.

Female—the sides of the body and breast are buff with brown bars, and the belly is pale buff without marks.

Length, 6 inches ; wing,  $2\frac{3}{4}$  inches ; tail, 1 inch ; legs, yellow ; irides, red ; bill, bluish black. Weight about 2 oz.

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## THE PAINTED BUSH-QUAIL.

*Micropardix Erythrорhincha*. Native names : *Kokinlowa*, Hind. ; *Kadai*, Tan.

*Habitat*.—The Western Ghats, Mysore, Belgaum, Satara and Poona, in which it is a constant resident.

*Description*.—Male—black head with brown patch behind the crown. White band over the eyes ; cheeks and throat white. Upper plumage brown

with black oval spots ; wing shafts white. Lower plumage chestnut ; breast fringed with pinkish grey ; each feather on the sides has a large oval black patch fringed with white.

Female—closely resembles the male except in the head, which has no white band across the crown or black on the forehead ; lower plumage lighter and the breast very sparsely spotted.

Length, 7 inches ; wing,  $3\frac{1}{2}$  inches ; tail,  $1\frac{1}{2}$  inch ; legs, red ; irides, brown ; bill, red. Weight, 3 oz.

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#### BLEWITT'S BUSH-QUAIL.

*Micropardix Blewittii*. Native name, *Sirsi Lowa*, Central India, Mandla, Balaghat, Chota Nagpore and Chanda.

*Habitat*.—The Central Provinces and Chota Nagpore.

*Description*.—Male—it very closely resembles the Painted Bush-Quail, the male differing in having a white band across the crown, broader than the black band on the forehead, while the female has no white or black band on crown or forehead. It associates in coveys up to a dozen or more, and rises with very little noise.

Length,  $6\frac{1}{2}$  inches ; wing,  $3\frac{1}{2}$  ins. ; tail,  $1\frac{1}{2}$  in. ; legs, red ; irides, brown ; bill, red. Weight,  $2\frac{1}{4}$  oz.

## THE JUNGLE BUSH-QUAIL.

*Perdicula Asiatica*. Native names: *Lowa*, Hind.; *Jahar*, Manbhoom; *Girzapitta*, Tel.; *Karilowga*, Canarese; *Orey*, Kurku; *Ootie*, Gond.

*Habitat*.—From Kashmir to Ceylon and from Sind to Calcutta.

*Description*.—Male—brown crown with black at the sides. Upper plumage buff, barred and waved with black. Wings barred and blotched with black; outer web of wing quills barred rufous. Forehead and a band over the eye, chestnut with whitish band above. Throat rich chestnut; breast, belly and sides barred, black and white. Thighs and under tail feathers, buff.

Female—differs from the male only in the lower plumage, which is entirely plain and destitute of marking.

Length, 7 inches; wing,  $3\frac{1}{4}$  inches; tail,  $1\frac{1}{2}$  inch; legs, red; irides, brown; bill, reddish. Weight, 3 oz.

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## THE ROCK BUSH-QUAIL.

*Perdicula Argoondah*. Native names: *Lowa*, Hind. and Maki; *Lawunka*, Tel.; *Sinkadeh*, Tam.; *Kemp-lowga*, Canarese.

*Habitat*.—Southern and Eastern Punjab, and North of the Ganges to Allahabad; it is found also far south.

*Description.*—Male—forehead and front of crown, sides of head, chin and throat rufous; white line over the eye. Upper plumage, wings and tail greyish brown, coarsely cross-barred with buff. Lower plumage, barred with black.

Female—nearly the whole plumage pinkish brown, throat whitish, wings, rump and tail freckled with buff.

Length, 7 inches; wing,  $3\frac{1}{4}$  inches; tail,  $1\frac{1}{2}$  inch.; legs, red; irides, reddish brown; bill, dark slate. Weight, 3 oz.

It avoids mountains, forests and jungle, and affects dry open sandy plains or low hillocks.

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### THE COMMON HILL-PARTRIDGE.

*Arboricola Torqueola.* Native names: *Rcli*, *Ramchukra*, Chamba; *Bantitur*, *Peora*, Garhwal and Kumaon; *Kaindal*, Kangra.

*Habitat.*—The outer ranges of the Himalayas from Chamba to Sikkim; also occurs in the Naga Hills.

*Description.*—Male—the whole crown deep chestnut with a white line on each side. Eye bordered black; chin, throat, sides of head and neck black, streaked with white. Breast grey, divided from the neck by a white collar.

Belly white, sides grey, each feather having an oval white spot with chestnut margin. Upper plumage, wings and tail olive brown, the feathers being margined with black.

**Female**—differs from the male chiefly in the head and neck, the crown being olive brown, streaked with black with a pale rufous eye streak. Throat rufous, streaked with black, followed by a chestnut collar.

Length, 11 inches ; wings, 6 inches ; tail,  $2\frac{1}{2}$  inches ; legs, pinkish grey ; irides, brown ; bill, blackish. Weight,  $13\frac{1}{2}$  oz.

They frequent dense cover and associate in coveys of about half a dozen, preferring water-courses and ravines like all hill partridges. They fly swiftly and low, and afford difficult shots.

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### BLYTH'S HILL-PARTRIDGE.

*Arboricola Rufigularis*. Native names : *Peora*, Kumaon ; *Kohumbut-pho*, Lepcha ; *Lakom*, Bhutan ; *Pokkhu*, Daphla Hills.

**Habitat**.—Lower ranges of the Himalayas to the Daphla Hills.

**Description**.—Sexes alike. Crown brown, spotted with black, grey band over the eye, speckled black ; throat, sides of the head and neck chestnut, spotted black. Upper plumage, wings and tail olive brown, rump and tail

having small black spots and triangular marks. Wing coverts pale olive brown, with large oval black spots and chestnut tips, breast grey, belly whitish, sides deep grey. First ten wing quills brown, mottled rufous at the tip.

Length,  $10\frac{1}{2}$  inches; wing, 5 inches; tail, 2 inches; legs, pale red; irides, brown; bill, black. Weight, 12 oz.

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### THE ARRAKAN HILL-PARTRIDGE.

*Arboricola Intermedia*. Native name : *Toung-hka*, Burma.

*Habitat*.—The Arrakan Hills, Bhamo, Cachar and the Naga Hills.

*Description*.—In colour-markings and size this partridge very closely resembles Blyth's Hill-Partridge, but it has a black throat followed by a chestnut band, and the black band below this is absent. Sexes alike.

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### THE WHITE-CHEEKED HILL-PARTRIDGE.

*Arboricola Atrigularis*. Native names : *Penra*, Sylhet; *Duboi*, Assam; *San batai*, Chittagong.

*Habitat*.—Assam, Sylhet, Cachar, Tipperah, Manipur, Chittagong and Upper Burma.

*Description.*—Sexes alike. It closely resembles other hill-partridges, but the sides of the body have small oval white spots, but no chestnut. Cheeks white, throat black.

Length,  $10\frac{1}{2}$  inches; wing,  $5\frac{1}{2}$  inches; tail,  $2\frac{1}{2}$  inches; legs, red; irides, brown; bill, black. Weight, 11 oz.

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### THE GREEN-LEGGED HILL-PARTRIDGE.

*Arboricola Chloropus.* Native name. *Toun-hka*, Burma.

*Habitat.*—Tenasserim, Tavoy, Pegu Hills, Toungu, down to Rangoon.

*Description.*—Sexes alike. Crown and hind neck rich brown, forehead and eye band white, streaked with black, chin white. Throat and cheeks white, spotted with black, neck chestnut spotted with black. Entire upper plumage rich olive brown with irregular black bars, wings mottled black brown and olive. Wing quills brown with mottled tips. Breast and sides of the body red, barred with black; belly, whitish.

Length,  $11\frac{1}{2}$  inches; wing, 6 inches; tail, 3 inches; legs, greenish; irides, brown; bill, greenish. Weight, 12 oz.

It rather avoids mountains and prefers low humid jungle on undulating ground.

## THE BLACK FRANCOLIN OR BLACK PARTRIDGE.

*Francolinus Francolinus.* Native names: *Kala teetur*, Hind. and Nepal; *Teetur*, Garhwal; *Vrembi*, Manipur.

*Habitat.*—Widely distributed in Northern India, absent in Rajputana; it occurs in Nepal, Orissa, Sind and Bengal, Assam and Manipur.

*Description.*—Male—Crown reddish brown, streaked with black. Throat and sides of the head black, with white eye and ear patches. Broad chestnut collar. Upper back black with white spots; lower back, rump and middle tail feathers black with narrow white cross-bars. Other tail feathers, black with white bars at the base. Wing quills brown, broadly barred on both webs with rufous. Breast and upper belly deep black, lower belly spotted white. Thighs chestnut, barred with white. Under tail feathers plain chestnut.

Female—Chin and throat whitish, sides of head buff speckled with black, crown pale buff, streaked with black; back of the neck chestnut. Back, rump and middle tail feathers dark brown. The latter cross-barred with buff; other tail feathers black with white bars at their bases. Wing quills same as in male. Lower plumage pale buff with black bars. There is great variety in size and weight. Of males the length is about 14 inches; wing,  $6\frac{1}{2}$  inches; tail, 4 inches; legs, red; irides, brown; bill, brown to black. Weight from 8 to 20 oz.

## THE PAINTED FRANCOLIN, OR PAINTED PARTRIDGE.

*Francolinus Pictus.* Native names, same as black Francolins ; *Chilerie*, Kurku ; *Kakranj*, Gond. *Talia Teetur*, N. Guzerat.

*Habitat.*—Those portions of the Peninsula in which the Black Francolin is absent.

*Description.*—It resembles the black Francolin, there is no chestnut on the hind neck, and the sides of the head are without bands or spots. In the male, the throat is spotted, and the white bars on the rump are very distinct and straight. The female has the throat unspotted, and the white bars on the rump are indistinct and wavy. Length, 13 inches ; wing, 6 inches ; tail, 3 inches ; legs, pale red ; irides, brown ; bill, brown or black. Weight, about 13 oz.

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## THE CHINESE FRANCOLIN.

*Francolinus Chinensis.* Native name ; *Hka*, Burma.

*Habitat.*—Burma and the Shan States.

*Description.*—Male—a broad black band from the bill over the eye to the neck, above this a broad chestnut band, crown black, each feather edged with chestnut. Side of the neck white with black moustachial streak. Chin and

throat white ; neck and breast black with double sets of white spots. Back, rump and tail coverts cross-barred black and white. A rich chestnut patch on the closed wing ; wing quills dark brown barred, on both webs rufous. Black tail, barred white at the base. Belly and sides black with double sets of large pale rufous spots.

Female—head similar to male, but the dark bands are brown, and the white parts are tinged with buff. Wings and lower plumage barred with black and buff instead of being spotted. Back and rump blackish, mottled with buff and barred with white and pale buff. Length, 13 inches ; wing,  $5\frac{1}{2}$  inches ; tail, 3 inches ; legs, orange ; irides, reddish hazel ; bill, blackish. Weight 14 oz.

Found in dry open forest and scrub jungle in hilly or undulating country, singly or in pairs.

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### THE GREY PARTRIDGE.

*Ortygornis Pondicerinus.* Native names : *Teetur, Ram teetur, Gora teetur, Sufaid teetur*, Hind. ; *Khyr*, Beng. : *Gowjul Dooki*, Canarese ; *Kondari*, Tam. ; *Kuwunzu*, Tel.

*Habitat.*—Practically the whole of India.

*Description.*—Sexes alike; the male larger than the female. Forehead chestnut-ground brown, rufous band over the eye, cheeks rufous, chin and throat buff surrounded by a black band or series of spots. Sides of neck barred black and white. Upper plumage and closed wings, tail coverts and middle tail feathers brown dashed with chestnut and barred pale buff. First ten wing quills brown, mottled grey towards the base. Tail feathers chestnut and black tipped with buff. Lower plumage pale buff delicately pencilled with black. Length of male, 13 inches; wing, 6 inches; tail,  $3\frac{1}{2}$  inches; legs, bright red; irides, dark brown; bill, blackish. Weight, 12 oz. It frequents bush jungle and cultivated lands, associates in coveys, rises with a loud whir, flies strongly.

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### THE SWAMP PARTRIDGE.

*Ortygornis Gularis.* Native names: *Kyah, Kyr, Beng.; Bun teetur, Jungli teetur, Hind. ; Koera, Koi, Assam; Bhil teetur, Cachar.*

*Habitat.*—Throughout the country between the base of the Himalayas to the Ganges, from Rohilkund to the Sunderbuns, Eastern Bengal, Assam, Cachar and Tipperah.

*Description.*—Sexes alike; male larger than female. Brown crown, buff band round the eye; chin, throat, cheeks and sides of neck, chestnut. Whole

upper plumage, closed wing and middle tail feathers brown barred pale buff ; remaining tail feathers, chestnut with pale tips. First ten wing quills rufous, with brown tips ; lower plumage, white, presenting a scaly appearance, being margined with a double border of black and brown. Length of male, 14 inches ; wing, 7 inches ; tail, 4 inches ; legs, red ; irides, brown ; bill, dark brown. Weight, 18 oz.

It associates in coveys, is a strong but short flyer, soon seeking cover. Is found in reed beds and the long grass bordering jheels, rivers and watercourses, and is fond of open patches of mustard, dhal and pulse cultivation.

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### THE CHUKOR PARTRIDGE.

*Caccabis chukur.* Native names : *Chukor*, Hind.; *Kau Kau*, Kashmir; *Chukru*, Chamba.

*Habitat.*--Throughout the Himalayas from Kashmir to Sikhim and in the Punjab Salt Range.

*Descriptions.*--Sexes alike ; the male is slightly larger than the female, and has a blunt spur on each leg. Upper plumage ashy with a rufous tint on the crown of the head, whitish streak over the eye, point of the chin black, remain-

der of the chin, cheeks and throat pale buff ; sides of the body banded with grey black and chestnut ; first ten wing quills buff on the outer web ; breast grey with rufous on the sides ; lower plumage, bright buff. Length  $14\frac{1}{2}$  inches ; wing,  $6\frac{1}{2}$  inches ; tail, 4 inches ; legs, red ; irides, brown or orange ; bill, deep red. Weight, 27 oz.

A very noisy bird associating in coveys, partial to dry stony ground or grassy hill-sides.

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### THE SEESEE PARTRIDGE.

*Ammoperdix bonhami.* Native names : Seesee, Hind., Punjab and Sind.

*Habitat.*—Punjab and Sind.

*Description.*—Male—black forehead and eye streak, a white streak before and behind the eye. Crown, head, ears, cheeks, chin and throat grey with a buff patch behind the ear. Sides of neck barred grey and buffish white. Upper plumage, wing coverts and tail, sandy buff, with black spots on the rump; wing quills brown with light buff on the outer web. Middle tail feathers mottled rufous and brown, the others chestnut. Lower plumage, pinkish buff ; belly and thighs and under tail feathers almost white. Sides broadly striped black and chestnut.

Female—has the body narrowly barred with black ; the rest of the plumage being irregularly barred with wavy lines of grey and pale rufous. In other respects it resembles the male. Length, 10 inches ; wing, 5 inches ; tail,  $2\frac{1}{2}$  inches ; legs, yellow ; irides, yellow, orange or brown ; bill, orange. Weight 8 oz. Frequents bare, broken ground.

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### THE SNOW PARTRIDGE.

*Lerwa lerwa*. Native names : *Lerwa*, Nepal ; *Jangooria*, Kumaon ; *Twora, Koor monal*, Garhwal ; *Golabi teetur, Ter teetur*, Hill States ; *Burruf ka Teetur*, Kulu ; *Biju*, Chamba.

*Habitat*—The Himalayas from Kashmir to Sikhim, especially on Tahr and Bhurrel ground ; a rare bird.

*Description*.—Sexes alike Throat, sides of head, entire upper plumage, visible portions of closed wings and tail cross-barred black and buffy white ; wings washed chestnut. First ten wing quills black, others broadly tipped with white. Lower plumage rich chestnut flecked with white ; belly and thighs barred brown and white ; under tail feathers chestnut tipped with white. Length 15 inches ; wing,  $7\frac{1}{2}$  inches ; tail,  $4\frac{1}{2}$  inches ; legs and bill, red ; irides, brown ; weight, 22 oz.

## THE HIMALAYAN SNOW COCK.

*Tetraogallus Himalayensis.* Native names : *Kullu, Lupu, Baera, Nepal; Huinwall, Kumaon; Jer monal, Mussoorie; Ram chukor, Kulu; Ram chukor, Kashmir; Gobind, Chamba; Ram chukor, Garhwal.*

*Habitat.*--Throughout the Himalayas from 11,000 to 18,000 feet in summer and down to 7,000 feet in winter.

*Description.*--Sexes alike. Crown, back of neck and mantle grey. Upper plumage, ashy grey pencilled with black; rump and wings bordered chestnut. Middle tail feathers reddish grey mottled with black, the others chestnut marked with black. Wing quills white, broadly tipped with black. Sides of the head and neck white. Breast white. Each feather with a black band across it. Lower plumage speckled grey and black. Sides streaked chestnut and black. Length of male, 26 inches; wing, 12 inches; tail, 8 inches; legs, red; irides, brown; bill, greenish black; weight,  $6\frac{1}{2}$  lbs.

An extremely shy bird, frequently requiring a rifle to bring it to bag. It is fond of bare rocky ground and is gregarious: the call is a melancholy, long drawn out "kuk—kük."

## FYTCHE'S BAMBOO PARTRIDGE.

*Bambusicola Fytchii.* Native name : *Vengte*, Kuki.

*Habitat.*--Khasia, Garo and Naga Hills, Cachar, Manipur and parts of Burma.

*Description.*--Sexes alike. A handsome bird, sides of the body and lower breast covered with large heart-shaped black spots. Upper plumage much variegated with large black spots as in the hill partridges. First ten wing quills rufous or chestnut (their chief distinction), tail long and much graduated; the male has a sharp spur on each leg. Length, 14 inches ; wing, 6 inches ; tail,  $4\frac{1}{2}$  inches ; legs, greenish ; irides, brown ; bill, dark brown ; weight, 14 oz.

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## THE RED SPUR-FOWL.

*Galloperdix spadicea.* Native names : *Chota jungli murgi*, C. P. ; *Kustoor*, Deccan ; *Sarabakoli*, Tamil ; *Yarrakodi*, Tel. ; *Chotiang*, Kurku ; *Chudal* and *Kor*, Gond.

*Habitat.*--Nepal, Kumaon, Behar and southward to the Pulni Hills in Madras in elevations up to 6,000 feet.

*Description.*—Male—forehead black, each feather edged with grey; crest and crown dark brown. Upper plumage chestnut, the feathers margined with grey; tail brown mottled with rufous. Throat, sides of the neck greyish brown, lower plumage bright chestnut, belly and thighs smoky brown. Wing quills plain brown.

Female—grey forehead streaked with black, crest and crown blackish; upper plumage same as in male. Under tail feathers black with chestnut bars. Length of male, 14 inches; wing, 6 inches; tail, 5 inches; legs, red; irides, yellow or brown; bill, brown; weight, 14 oz.

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### THE PAINTED SPUR-FOWL.

*Galloperdix lunulata.* Native names: *Askol*, Orissa and Singbhoom; *Hootka*, Chanda; *Cul-koli*, Tam.; *Jitta-Kodi* Tel.

*Habitat.*—Rather local over a considerable portion of the Peninsula.

*Description.*—Male—crown black spotted with white, black mantle and wing coverts, rump and tail coverts rich chestnut with black edged with spots, some of the wing feathers have a metallic green gloss. Tail black. First ten wing quills brown. Throat, fore neck, and sides of neck black, barred white. Sides of the body chestnut, breast buff spotted with black, belly chestnut with dull white bars, under tail feathers black and chestnut mixed.

Female—black crown with narrow chestnut streaks. Upper plumage olive brown, tail black, wing brown, fore neck and chest olive brown with black tips to the feathers, breast and belly buff with black marks, under tail feathers brown. Length, 13 inches; wing, 6 inches; tail, 5 inches (female smaller); legs, lead colour; irides, brown; bill, horn color; weight, 10 oz.

It is specially partial to rocky jungle, is difficult to flush, and flies straight for the thickest cover.

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### THE BLOOD PHEASANT.

*Ithagenes cruentus*. Native names : *Chilmeah*, *Selzung*, Nepal; *Sameh*, Sikkim.

*Habitat*.—Nepal, Sikkim and Western Bhootan.

*Description*.—Male—forehead, space round the eye, black mixed with crimson, crown buff and crest feathers grey. Neck and mouth deep grey, each feather with a white shaft streak. Upper plumage grey. Tail coverts with broad crimson margins. Wing quills brown with white shaft streaks. Tail feathers grey with black bases, each feather margined with crimson, Chin and throat crimson. Sides of the neck and gorget green. Lower plumage green. Under tail feathers crimson tipped with yellow. Female—resembles

male, but the crest and neck are slate colour, the upper plumage reddish brown, tail dark brown, chin and throat and lower plumage reddish and the crest feathers wholly slate colour. Length of male, 18 inches ; wing,  $8\frac{1}{2}$  inches ; tail,  $6\frac{1}{2}$  inches (female smaller.) Legs, intense red ; irides, brown ; bill, black. In the male the bare parts of the head are deep red, in the female yellow carmine ; weight, 20 oz.

It affects pine forests, is a great runner, takes very short flights and never crows.

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### THE GREY PEACOCK PHEASANT.

*Polipelectron Chinquis.* Native names : *Munnowar*, Assam ; *Deodrug*, Garo Hills ; *Shway-doun*, Burma ; *Kat-mohur*, Chittagong.

*Habitat.*—Outer slopes of the Himalayas from Sikhim to Assam ; thence down to Tennasserim.

*Description.*—Male—crown and crest mottled black and white, hind neck finely barred grey and brown. Upper plumage, wings and tail, brown dotted all over with white. Mantle and wing feathers with bright round metallic purple spots, with whitish rings ; each tail feather has two large metallic green eyes, bordered black and grey. Throat white, lower plumage dark brown

dotted with white. Female—upper plumage, closed wings and tail dark brown, rump feathers bearing small triangular marks. Tail feathers, except the middle pair, have two ill-defined metallic eyes. Throat white, lower plumage brown and buff. Length of male, 25 inches; wing, 8 inches; tail, 13 inches (female smaller); legs, blackish; irides, white; bill, dark brown; skin of face, pale yellow.

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### THE CRIMSON HORNED PHEASANT.

*Tragopan Satyra*. Native names, *Lungee*, or *Singwal Cheera*, Garhwal and Kumaon; *Monal*, Nepal; *Tirriac-pho*, Lepcha; *Omo*, *Bhoop*, Bhutia; *Nunal*, Sikhim; *Dafia*, Bengal.

*Habitat*.—The Himalayas from Garhwal to Sikhim, breeding from not far below the snows.

*Description*.—Male—face thinly covered with small black feathers, neck and lower plumage rich red, body sprinkled with round white spots edged with black. Loose skin of the throat deep blue. Tail black mottled with rufous, wing quills much barred with rufous. Female—light portions of the plumage cinnamon and buff. Lower plumage sandy rufous. Length of male 26 inches; wing, 11 inches; tail, 10 inches; horns, blue; bib, orange; legs, flesh-coloured; irides, brown; bill, dark brown; weight,  $4\frac{1}{2}$  lbs.

## THE WESTERN HORNED PHEASANT.

*Tragopan Melanocephalus.* Native names : *Jowar*, Garhwal ; *Sing monal*, N.-W. Himalayas ; *Fulgoor*, Chamba.

*Habitat.*—The Himalayas from Garhwal to Kashmir.

*Description.*—Male—head black, crest black tipped with crimson ; neck crimson, chest fiery red. Upper plumage buff spotted with white, each spot margined with black. Tail black barred with buff. Lower plumage black, each feather with a large white spot. Female—generally greyish brown, mottled and barred with black and buff. Lower plumage paler with white spots, margined with black. Length of male, 27 inches ; wing,  $10\frac{1}{2}$  inches ; tail,  $10\frac{1}{2}$  inches (female smaller) ; sides of the head, red ; horns, blue ; bib, purple ; legs, grey ; irides, brown ; weight,  $4\frac{1}{2}$  lbs.

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## THE GREY-BELLIED HORNED PHEASANT.

*Tragopan Blythi.* Native names : *Hurkura*, *Soonsoorea*, Assam ; *Noo, Naga Hills*.

*Habitat.*—Assam, Naga and China Hills and Sadiya.

*Description.*—Male—resembles the western horned pheasant, but the lower plumage is smoky grey, the upper plumage has a maroon ground and there is a

black band round the throat. Tail coverts white and chestnut. Sides of the body spotted grey. Female—hardly distinguishable from the male crimson horned pheasant, but blacker above. Length of male, 24 inches ; wing, 10 inches ; tail,  $7\frac{1}{2}$  inches ; legs, brown ; irides, brown ; skin round the eye, orange ; horns, blue ; bib, yellow, tinged with blue.

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### THE MONAL PHEASANT.

*Lophophorus Impeyanus.* Native names : *Lout*, male ; *Ham*, fem. ; *Neel-mohur*, *Jungli mohur*, Kashmir ; *Neelgur*, male ; *Nulwai*, fem., Chamba ; *Monal*, Kulu and Central Himalayas ; *Damphia*, Nepal ; *Phodongpho*, Sikhim.

*Habitat.*—Throughout the Himalayas from Kashmir to Sikhim.

*Description.*—Male—crest and head bright metallic green ; mantle bronze green ; back of the neck copper colour. Upper back, rump, tail coverts purple, back white. Tail chestnut, lower plumage black. Female—crown and sides of head, neck and mantle and upper back, blackish, with irregular rufous shaft streaks and lines, rump brown, marked with black ; tail black with rufous cross bars tipped with white, chin and throat white, lower plumage brown. Length of male, 26 inches ; wing,  $11\frac{1}{2}$  inches ; tail, 9 inches (female smaller) ; legs, greenish ; irides, brown ; bill, dark brown ; face skin, blue ; weight about 5 lbs.

## THE COMMON PEA-FOWL.

*Pavo cristatus*. Native names: *Mohur*, Hind.; *Menjur*, Western Duars; *Mujur*, C. P.; *Marja*, Bhutia; *Mongyang*, Lepcha; *Moir, moira*, Assam; *Dode*, Garo Hills; *Myl*, Tam.; *Nimili*, Tel.; *Nowl*, Can.; *Mara*, Kurku; *Mull*, Gond.

*Habitat*.—Throughout India from the Indus to Assam.

*Description*.—Male—head, neck and upper parts of breast and mantle rich purplish blue. First ten wing quills chestnut; wing coverts and remaining quills pale buff, barred irregularly with black. Female—crest on head, head and upper neck chestnut; lower neck and upper mantle and breast, green; feathers edged with brown; chin, throat, parts of neck and sides of the head, white. Upper plumage brown, lower plumage rufous buff. Tail coverts and outer part of wing barred with buff. Tail black mottled buff. Length of male (to full extent of train), 90 inches; wing, 18 inches; tail, 20 inches; legs, brown; irides, brown; bill, brown; weight, 11 lbs.

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## THE BURMESE PEA-FOWL.

*Pavo muticus*. Native names: *Doun, Oodoun*, Burma; *Marail*, Talain; *Toosia*, Karen.

*Habitat*.—Throughout Burma to Tenasserim.

*Description.*—Male—head blue; upper neck and mantle covered with rounded, greenish, bronze feathers with a purplish centre and narrow black margin. First ten wing quills chestnut, remainder black or dark brown. Wing coverts green and purple, not barred. Other parts resemble the common variety. Female—resembles the male except that the inner feathers of the wing are barred and mottled with buff. The back and rump are brown barred with buff without the brilliant scale-like feathers. Length of male (with train), 90 inches; wing, 19 inches; tail, 22 inches; legs, dark brown; irides, dark brown; bill, black; weight, 11 lbs. Naked skin of face partly yellow, partly blue.

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### THE CHEER PHEASANT.

*Catreus Wallichii.* Natives names: *Chihir*, Nepal; *Cheer*, Kumaon and Garhwal; *Buncheel*, Mussoorie; *Chummun*, Chamba, Kulu, etc.

*Habitat.*—The lower Himalayas, from Nepal to Chamba, at elevations from 4,000 to 10,000 feet.

*Description.*—Male—crown and crest brown; throat and neck ring whitish. Mantle, back, wing coverts, pale buff barred with black, with a narrow grey tip and a bar of pale blue. Rump, chestnut, barred with black; tail, buff, barred

black and chestnut ; lower plumage, pale buff with irregular black bars. Female—crown and crest edged with buff ; sides and back of the neck, black ; mantle, chestnut ; upper plumage, black, buff and rufous. Tail, buff, barred and mottled with black and rufous. Throat, white ; breast, black ; belly, chestnut. Length, 40 inches ; wing, 10 inches ; tail, 20 inches ; legs, slaty brown ; irides, red ; bill, brown ; facial skin, crimson ; weight 3 lbs.

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### THE COMMON KOKLASS PHEASANT.

*Pucrasia Macrolopha.* Native names : *Pokhras*, Kumaon and Garhwal. *Koklass*, Almora to Simla ; *Koak*, Kulu ; *Plas*, Kashmir ; *Kukrola*, *Kuk*, Chamba.

*Habitat.*—From Kumaon to Kashmir, from 3,000 to 8,000 feet.

*Description.*—Male—head, glossy black, with a large patch of white on each side of the neck. Upper plumage and sides of the body, ash colour, streaked with black. Breast and Belly, rich chestnut. Wing quills, dark brown ; middle tail feathers, chestnut, tipped with grey. Female—general colour rufous, streaked with black ; throat, white ; lower plumage, pale rufous, and belly, pale buff, marked with black. Length, 24 inches ; wing  $9\frac{1}{2}$  inches ; tail, 10 inches ; legs, ashy ; irides, dark brown ; bill, black ; weight,  $2\frac{1}{2}$  lbs.

## THE NEPAL KOKLASS PHEASANT.

*Pucrasia Nepalensis.* Native name : *Pokrass*, Nepal.

*Habitat.*—Nepal.

*Description.*—Generally like the common koklass, but the upper plumage and sides of the body are black, each feather being narrowly margined with grey. The female closely resembles the female of the common koklass, and both birds are somewhat smaller and lighter than the latter.

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## THE WHITE-CRESTED KALEEJ PHEASANT.

*Gennæus Albicristatus.* Native names : *Kaleej*, Hind. ; *Kookeera*, Mussoorie ; *Kalaysur*, male, *Kalaysee*, female, Kulu ; *Kolsa*, Punjab.

*Habitat.*—The lower and middle ranges of the Himalayas from Hazara to Kumaon.

*Description.*—Male—head and neck, blue-black, with a white crest. Mantle wing coverts, back and rump, black. Tail, black, with the inner web of the

middle feathers brownish. Breast and upper belly, greyish white; lower plumage, brown. Female exhibits no white on the mantle. The head and crest is brown; upper plumage, brown; tail, glossy black; throat, grey; lower plumage, reddish brown. It favours thick clumps of bushes and shrubs near rivers and thorny thickets near cultivation. It makes a peculiar drumming sound with its wings during the breeding season. Length, 25 inches; wing, 9 inches. Legs, brownish grey; irides, orange brown; bill, pale green; face skin, crimson. Weight, 2 lbs.

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### THE NEPAL KALEEJ PHEASANT.

*Gennaeus Leucomelanus.* Native name : *Kaleej*, Nepal.

*Habitat.*—Nepal.

*Description.*—Closely resembles the white-crested kaleej, but the crest is black, no portion of the upper plumage shows traces of white; back and rump have narrow white fringes. The lower plumage is variegated, not black. The female cannot be distinguished from that of the white-crested kaleej. These birds are very fond of perching on trees.

## THE BLACK-BREASTED KALEEJ PHEASANT.

*Gennæus Horsfieldi.* Native names: *Doreek*, Assam and Garo Hills; *Mathura*, Sylhet and Chittagong; *Yit*, Burmese.

*Habitat.*—Lower Himalayan ranges, Assam, Tipperah, Chittagong and Manipur, also Burma.

*Description.*—Male—whole plumage glossy black, not vermiculated with white; crest, black; back and rump with broad white fringes. Lower plumage, black. Female—same as the three preceding species. Weights, measurements, etc., the same.

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## THE SOUTH ARRAKAN SILVER PHEASANT.

*Gennæus Oaksi.*

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## THE LINEATED SILVER PHEASANT.

*Gennæus Lineatus.*

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## THE SALWEEN SILVER PHEASANT.

*Gennæus Sharpii.*

## THE RUBY MINES SILVER PHEASANT.

*Gennaeus Rufipes.*

These four pheasants are rare and are merely varieties of the common kaleej, and are all called *Yit* in Burmese. Little is known about them except from the few Museum specimens extant.

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## THE RED JUNGLE FOWL.

*Gallus Gallus.* Native names: *Jungli* or *Ban Murgee*, Hind.; *Ban Kokra*, Beng. and Assam; *Natsu-pia*, Bhutia; *Pazok-tchi*, Lepcha; *Tu-gyet*, Burma; *Kura*, Chittagong.

*Habitat.*—The lower Himalayas, most of the Indian hill tracts, the Central Provinces, Assam, Bengal.

*Description.*—Male—crown hackles, rich orange red with black shaft streaks; lower hackles, golden. Back, black; rump, maroon; tail, black. Whole of lower plumage, deep black. Female—crown, brown; mantle, black, tipped with yellow. Upper plumage, brown or buff, much freckled with black; tail, brown; lower plumage, rufous. Usually found in small parties; the cock

crows like the domestic rooster; the hen cackles like the domestic hen, both when alarmed and after laying. Length, 28 inches ; wing, 9 inches ; tail, 14 inches. Female, length, 17 inches ; wing,  $7\frac{1}{2}$  inches ; tail, 6 inches. Legs, bluish ; comb and neckskin, red ; irides, red ; bill, black. Weight, 2 lbs.

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### THE GREY JUNGLE FOWL.

*Gallus Sonnerati.* Native names : *Jungli Murgee*, *Ban Murgee*, Hind. ; *Komri*, Mt. Abu ; *Purda Komri*, Chanda ; *Kumbadi*, Deccan ; *Adavikode*, Tel. ; *Katukoli*, Tamil ; *Koli*, Can.

*Habitat.*—Southern India.

*Description.*—Male—hackles, black, each feather with a yellow spot at the tip like sealing-wax ; back and rump, black. Tail coverts, purple ; tail, black. Lower plumage, black ; sides of the body marked chestnut ; wing quills, brown. Female—lower plumage, white ; head, brown ; mantle, dark brown ; upper plumage, light brown, speckled with black. Tail, black, mottled with rufous. Its habits are the same as those of the red jungle fowl, and it breeds twice a year. Length of male, 28 inches ; wing, 9 inches ; tail, 15 inches. Female—

length, 16 inches; wing, 8 inches; tail,  $5\frac{1}{2}$  inches. Legs, yellow; irides, red; bill, black; comb, wattles and skin, crimson. Weight, over 2 lbs.

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### THE GREAT INDIAN BUSTARD.

*Eupodotis Edwardsi*. Native names: *Toogdar*, *Gudain*, Punjab; *Sohun Chirya*, *Gugumbher*, *Hookna*, Gwalior, Jhansi, etc.; *Hoom*, Marathi; *Kara-dhouk Maldhouk*, Deccan; *Gurahna*, Sind; *Buttmeka Bat-mayka*, Tel.; *Heri hukki*, *Arl-Koojina-hukki*, Can.; *Kanalmyle*, Tam.; *Ghorad*, Kathiawar.

*Habitat*.—Punjab and Sind, the Central Provinces and southwards, and generally over the Peninsula, except the Western Coast.

*Description*.—Male—crown and crest, black; sides of head, throat and neck mottled in young birds, white in old birds. Upper plumage, tail and closed wings sandy buff, pencilled with black; wing coverts, black, tipped with white. A broad black band across the breast, lower plumage white, flanks dark brown. Female—closely resembles the male, but is smaller. It frequents open grassy plains with bare patches. Length of male, 48 inches; wing, 27 inches; tail, 13 inches; female, length, 36 inches; wing, 20 inches. Legs, yellow; irides, yellow; bill, brown. Weight of male, 25 lbs.; female, 10 lbs.

## THE INDIAN HOUBARA BUSTARD.

*Houbara Macqueeni.* Native names : *Tilaur*, *Heubara*, Punjab and Sind.

*Habitat.*—A winter visitor to Sind, the Punjab and the North-West Provinces.

*Description*.—Sexes alike, but the female is smaller. The crest springs from the middle of the crown, the front feathers being black with white tips, the hinder ones quite white. The black ruff begins at the ears and ends across the breast. Upper plumage fulvous, barred and pencilled with black ; throat, white ; neck speckled with fulvous ; lower plumage white. It frequents level or undulating semi-desert plains. Length of male, 28 inches ; wing about 16 inches ; tail about 10 inches. Female, length up to 27 inches ; wing about 15 inches ; tail about 9 inches. Legs, yellow ; irides, yellow ; bill, dark brown. Weight, male,  $5\frac{1}{4}$  lbs. ; female,  $3\frac{3}{4}$  lbs.

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## THE LITTLE BUSTARD.

*Tetrax Tetrax.* Native name : *Chota Tilaur*, Hind.

*Habitat.*—A winter visitor to the Punjab and the U. P.

*Description.*—Male—has the forehead and crown fulvous, much marked with black ; throat and sides of the head, bluish grey ; neck, black ; white bands at the back of the head, and down each side of the neck, meeting in

front. Lower plumage, white ; upper plumage and closed wings, fulvous, banded black ; tail white banded with black. Female—resembles the male, but the breast and sides of the body are spotted as well as barred with black ; upper plumage coarsely marked with black. Length of male, 18 inches ; wing,  $9\frac{1}{2}$  inches ; tail about 4 inches. Female, length, about 19 inches ; wing, 10 inches ; tail, 4 inches. Legs, yellow ; irides, brown ; bill, black. Weight, about 2 lbs.

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### THE BENGAL FLORICAN.

*Houbaropsis Bengalensis.* Native names : *Charat*, Hind.; *Dahar*, Nepal ; *Ooloomoora*, Assam.

*Habitat.*—Eastern Bengal, Assam Valley, Nepal, Terai, Bhootan, Duars, Oudh and U. P. north of the Ganges.

*Description.*—Male—in summer plumage has the whole head, neck and lower plumage black, with a full crest and a tuft on the breast. Upper plumage, black mottled with buff ; wing coverts, white ; middle tail feathers, black, mottled with fulvous. The male in winter plumage and the female at all seasons have the upper plumage, wings and tail fulvous, much marked with black ; lower plumage, fulvous, with neck and breast mottled with black. It frequents

high grass tracts, grass churs and occasionally cultivation. Male, length up to 25 inches ; wing, about 13 inches ; tail, about 7 inches ; female, length up to 28 inches ; wing, 14 inches ; tail, 7 inches. Legs, yellow ; irides, yellow ; bill, brown above, yellow below. Weight,  $4\frac{1}{2}$  lbs.

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### THE LESSER FLORICAN.

*Sypheotis aurita*. Native names : *Ker mor*, Guzerat ; *Tun mor*, Deccan and Marathi ; *Chini mor*, Belgaum ; *Khartitar*, Bhil ; *Likh, Chota Charat*, U. P. ; *Barsati*, *Kala Tugder*, Rohtak, Gurgaon ; *Charas Chulla Charas*, S. India ; *Khan noul*, Can. ; *Niala nimili*, Tel. ; *Wurragu Koli*, Tam. ; *Tilori*, Kathiawar.

*Habitat*.—General throughout India, resident in some parts, partially migrant in others.

*Description*.—It generally resembles the Bengal Florican, but is much smaller, and frequents grass plains with low jungle and young crops. It performs a curious saltatory exercise during the nesting season, clucking as it jumps and when running it raises its tail after the manner of domestic fowls.

Male.—Length, up to 19 ins. ; wing, 8 ins. ; tail, 4 ins.

Female.—Length, up to 21 ins. ; wing,  $9\frac{1}{2}$  ins. ; tail, 5 ins.

Legs, pale yellow ; irides and bill yellow ; weight about  $1\frac{1}{2}$  lb.

# THE WATER GAME BIRDS.

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## THE MUTE SWAN.

*Cygnus Olor.* Native name: *Penr*, Punjab.

*Habitat.*—A rare visitor to Peshawar, Hazara, Sind.

*Description.*—Sexes alike; adult birds, pure white; young birds, pale brown, changing to white at fifteen months. The adult male has a knob at the base of the upper mandible; the female has a smaller one; the young have none. Adult birds have the bill orange red, the knob, skin between eye and bill a patch on the nostril, the nail margins of both mandibles and base of lower one are black, irides brown, legs and feet black. Young birds have the bill fleshy grey or pale buff.

Length 5 ft. Weight from 13 to 19 lbs.

## THE WHOOPER SWAN.

*Cygnus musicus*. A visitor.

*Description*.—Pure white, bill yellow and black, no knob on the upper mandible. Bare skin in front of the eye yellow. The young are pale brown with dull flesh-coloured bills.

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## BEWICK'S SWAN.

*Cygnus Bewicki*.—A visitor.

*Description*.—The adult is pure white; the young pale brown. The bill is yellow and black, the yellow being much less in extent than in the Whooper. No knob on the upper mandible.

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## THE GREY LAG GOOSE.

*Anser Anser*. Native names: *Sona Rajhans*, *Kurria Sona*, Upper India; *Budbay*, Doab; *Karhans*, Bhagulpur; *Mogala*, *Mogala butuk*, *Mogala hans*, Nepal Terai; *Kangnai*, Manipur; *Tau-Ngan*, Burma.

*Habitat.*—A winter visitor to Upper India, Assam, Manipur and the Chindwin and Irrawadi rivers.

*Description.*—Gregarious; sexes alike; head and neck, brown; mantle, black; scapulars and inner secondaries brown, tipped with grey. Rump grey, upper tail coverts, white; breast, ashy grey; sides of the body brown; belly white; axillaries, bluish grey.

Length about 32 ins.; wing, 18 ins.; tail, 6 ins.; bill and legs, pale brown to whitish; irides, brown; weight, 9 lbs.

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### THE LARGE WHITE-FRONTED GOOSE.

*Anser Albifrons.* Native name : *Raj hans.*

*Habitat.*—A rare winter visitor.

*Description.*—Forehead and chin, white; head and neck, brown; mantle, black; and scapulars, ashy brown. Rump, dark brown or blackish; breast, pale ashy grey; lower plumage, white.

Length, about 27 ins.; wing, 15 ins.; tail, 5 ins. (female smaller). Bill, orange yellow; irides, brown; legs and feet, orange; weight, about 5 lbs.

## THE BAR-HEADED GOOSE.

*Anser Indicus.* Native names : *Rajhans*, *hans*, *birwa*, Hind. ; *Paria*, Nepal ; *Neerbathoo*, S. India ; *Banooria hans*, Assam ; *Badi hans*, Chittagong ; *Kangnai*, Manipur ; *Tau-Ngan*, Burma.

*Habitat.*-- A cold weather visitor and common in many parts of India.

*Description.*--Easily distinguishable from other geese by the black bars on the head and neck. Sexes alike.

Length about 30 ins. ; wing, 17 ins. ; tail, 6 ins. Bill, from yellow to orange with a black nail. Legs and feet, yellow to orange ; claws, black ; irides, deep brown ; weight up to 7 lbs.

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## THE COMMON SHELD DUCK.

*Tadorna*, or *Tadorna Cornuta*. Native names : *Raraia Chackiwa*, *Sufaid Surkhab*, Hind. ; *Nirajee*, Sind.

*Habitat.*--An uncommon winter visitor in the northern parts of India.

*Description.*--Male--head and neck, glossy black ; upper breast and mantle, white ; lower breast, rich chestnut with a black band in the middle ; the remainder of the lower plumage and under wing, white. Upper wing coverts, scapu-

lars, back rump and upper tail coverts, white ; outer scapular, black ; tail, white with black tip. Primaries and their coverts, black. Outer secondaries, bronze green on the outer, white on the inner web ; inner secondaries, white ; the female resembles the male, but the chestnut parts of the body plumage are duller, and the dark portions thereof are brown. It frequents the larger lakes and rivers and affects the shore until disturbed. It is gregarious and shy, flies with slow and laboured beats of the wings and seldom or never dives.

Male.—Length, 24 ins. ; wing, 13 ins. ; tail,  $4\frac{1}{2}$  ins.

Female.—Length, 21 ins. ; wing,  $11\frac{1}{2}$  ins. ; tail, 4 ins. Bill, red with a dusky nail ; irides, brown ; legs and feet, flesh colour. Weight, under 3 lbs.

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### THE RUDDY SHELD DUCK OR BRAHMINY DUCK.

*Casarca Casarca* or *Casarca Rutila*. Native names : *Chuckwa, Surkh-àb, Lal*, Hind. ; *Mungh*, Sind ; *Bugri*, Bengalee ; *Neerbathoo Neer Kolee*, S. India ; *Basana, Chilliwa*, Tel. ; *Kesarpandia, Pandahansa*, Ooriya ; *Hinthâ*, Burma ; *Budak, Kurku* ; *Kabuda*, Gond.

*Habitat*.—A winter visitor to almost every part of India.

*Description.*—Male—head, buff; neck, mantle, sides of the breast, lower plumage and belly, chestnut. Axillaries and under wing coverts, white. Rump, upper tail coverts and tail, black. Wing coverts, white, with a buff tinge; primaries and their coveris, black. Outer secondaries, bronze green with white on the inner web; other secondaries, chestnut. Female—resembles the male, but does not assume the black ring round the neck, which the male exhibits during the breeding season. This bird swims little, keeps almost entirely to the land, avoids all cover, is remarkably wary and is a sentinel to all other ducks. It is rank and fishy in taste.

Male.—Length, 26 ins.; wing, 15 ins.; tail 6 ins.

Female.—Length, 23 ins.; wing, 14 ins.; tail,  $5\frac{1}{2}$  ins. Bill, black; irides dark brown; legs and feet, very dark brown. Weight, about 4 lbs.

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### THE COMB DUCK.

*Sacridiornis Melanonota.* Native names: *Nukta, Nukwa, Chota Nagpore;* *Naki hansa, Ooriya; Jutu Chilluwa, Tel.; Dod sarle haki, Can.; Neer Koli,* S. India; *Taubay, Burma.*

*Habitat*—A regular visitor to nearly all India, occurring chiefly in the plains, but is found up to 2,000 ft.

*Description.*—Male—head and neck, white, mottled with black. Mantle and lower plumage, white ; sides of the body, pale grey ; axillaries and under wing coverts, black ; back and scapulars, black ; primaries, black ; secondaries, brown on the inner, bronze green on the outer web ; the upper wing coverts, bronze green. Rump, tail coverts and tail, black. Female—closely resembles the male. It affects weedy tanks and swamps and sluggish streams. Is generally found in pairs ; is heavy and clumsy, but flies well and is not wary.

Length of male, 30 ins. ; wing, 15 ins. ; tail, nearly 6 ins. Female : length, 27 ins. ; wing,  $11\frac{1}{2}$  ins. ; tail, 4 ins. ; bill, black ; irides, dark brown ; legs and feet, dark slate. The comb of the male is black. Weight,  $5\frac{3}{4}$  lbs.

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### THE SMALL WHISTLING DUCK OR TEAL.

*Dendrocygna Javanica.* Native names : *Silli, Silhali, Chihi*, Hind. ; *Saral, Shareil, Harrali hans*, Beng. ; *Hansrali*, Ooriya ; *Adla*, Mahr. ; *Yerra chilluwa*, Tel. ; *Chembatara*, Tam. ; *Horali*, Assam ; *Tingi*, Manipur ; *Sissalee*, Burma.

*Habitat.*—A permanent resident in most parts of India, except the Himalayas, Cashmere and the Punjab ; very common in Bengal.

*Description.*—Sexes alike. Forehead and crown, fulvous brown; sides and back of the head, lighter; chin, throat and neck, grey. Breast, pale orange brown; belly and sides of the body, chestnut; under tail coverts, white; mantle, light brown; back and scapulars, dark brown; rump, black; tail coverts, chestnut; tail, brown; lesser and middle wing coverts, maroon; greater coverts, dark ashy; other wing quills, axillaries and under wing coverts, black. It prefers weedy ponds and marshes, village tanks, roadside drains and paddyfields; it is not shy; is fond of perching on trees, is an excellent swimmer and diver, and utters a double whistle when rising and during flight.

Length, 16 ins.; wing,  $7\frac{1}{2}$  ins.; tail,  $2\frac{1}{2}$  ins. Bill, legs and feet, brownish blue, the nail on the bill nearly black; irides, brown; eyelids, bright yellow. Weight up to  $1\frac{1}{4}$  lb.

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### THE LARGE WHISTLING DUCK OR TEAL.

*Dendrocygna fulva.* Native names, same as those of the small whistling teal.

*Habitat.*—All over India, but less common than the smaller variety.

*Description.*—Sexes alike, and generally resembling the smaller whistling duck, except that there is a black band down the back of the neck. Its habits are identical with those of the smaller variety, and it is more wary, gets away

quicker, and is more difficult to shoot. Length, about 20 inches; wing, 9 inches; tail,  $2\frac{1}{2}$  inches. Bill, legs and feet, dark slaty; irides, brown; weight up to 2 lbs.

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### THE COTTON TEAL.

*Nettopus coromandelianus*.—Native names : *Girri*, *Girria*, *Girja*, *Gurgurra*, Hind. ; *Ghangariel*, *Ghangani*, Beng. ; *Chota Goiree*, Behar ; *Ballia hans*, Dacca, Assam, Sylhet ; *Gandana*, Ooriya ; *Lerriget-perriget*, Koll ; *Adla*, West Coast ; *Kalagat*, Burma.

*Habitat*.—Generally throughout India; the smallest duck with the longest mane.

*Description*.—Easily distinguishable from any other Indian teal by having dark axillaries, either entirely black or else brown, margined with grey. Nearly all the secondaries are broadly tipped with white, and there is a dark cap on the crown. The male has a large white patch on the primaries, which easily distinguish the bird when flying. In the female, the primaries are entirely black or very dark brown. It swarms in thousands in suitable places. It flies low and is easily netted. Its flight is remarkably swift and tricky; it is a good diver, and wounded birds are generally lost.

Length, about 13 inches ; wing,  $6\frac{1}{2}$  inches ; tail,  $2\frac{1}{2}$  inches ; the female is slightly smaller. Bill (male) black ; irides, bright red ; legs, black. The female has the bill brown above, yellowish bellow ; irides, brown ; legs, yellowish. Weight, 10 oz.

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### THE GREY DUCK OR SPOTTED BILL.

*Polionetta paecilorhyncha* or *Anas paecilorhyncha*. Native names : *Hunjur*, Sind ; *Garampur*, *Bata*, *Gugral*, Hind. ; *Naddun*, Nepal ; *Neer-bathoo*, Tam. ; *Neer Koli*, Can. ; *Kara*, Manipur ; *Ludeen*, Behar ; *Taubay*, Burma.

*Habitat*.—From the Himalayas to Cape Comorin, but not in Kashmir, Assam, Sylhet, Cachar, Manipur, Arracan and Upper Burma.

*Description*.—Sexes alike, easily distinguishable from other ducks by the orange or yellow spot on the tip of the upper mandible. It frequents ponds, tanks, jheels, lakes, and prefers reed marginated water. It is found singly or in pairs as a rule, but in large open water occurs in flocks. It is not shy and is often found near villages. It is commonest in Manipur. Male—length, 24 inches ; wing, 11 ins. ; tail, 4 inches. Female, smaller. Bill, black ; the base of the upper mandible, orange ; the tips of both mandibles varying from orange to yellow ; tip of the nail, black ; irides, brown ; legs and feet, bright red. Weight up to  $3\frac{1}{2}$  lbs.

## THE COMMON TEAL.

*Nettium crecca*. Native names: *Murghabi*, *Chota murghabi*, *Kerra*, *Lohya kerra*, *Patare souch ureuka*, Hind. ; *Kardo*, Sind ; *Baigilagairi*, Nepal ; *Narrib*, *Tulsia bigri*, Bengal ; *Killwoai*, Madras ; *Sorlai haki*, Can. ; *Goiree*, Behar.

*Habitat*.—A winter visitor found throughout India and extremely common.

*Description*.—Male—chin and patch round the eye black, a metallic green band from the eye down the side of the neck ; rest of the head, rich chestnut. Lower neck, mantle, sides of the breast, pencilled black and grey. Outer scapulars cream, bordered black on the outer web. Back and rump, light brown. Outer web of the primaries, black ; inner web, drab ; axillaries, white ; three or four secondaries, metallic green. Speculum, green or purple in various lights. Female—head streaked brown ; sides of the head and neck, pale buff, spotted and streaked with brown ; chin and throat marked with brown. Mantle, back, and scapulars, dark brown ; rump and upper tail coverts, dark brown. Wing similar to that of the male ; breast, sides of the body and tail coverts, white ; belly, whitish. There is no oval spot at the sides of the base of the upper mandible. It is wary or approachable according to the treatment it receives ; it is a fast flyer, is partial to weedy water, and is gregarious. Length,  $14\frac{1}{2}$  inches ; wing,  $7\frac{1}{2}$  inches ; tail, 3 inches. Bill, blackish ; irides, brown ; legs and feet, grey or lead colour. Weight up to 15 oz.

## THE GARGANEY OR BLUE-WINGED TEAL.

*Querquedula circia.* Native names: *Chaitwa, Patari, Khyra*, Hind.; *Gangrobe, Girria*, Beng.

*Habitat.*—A winter visitor to every part of India. It is perhaps our commonest duck.

*Description.*—Male—forehead and crown blackish, with a broad band of white from the front of the eye skirting the back of the crown ; chin, black ; sides of the head, throat and neck, chocolate brown. Mantle and breast barred with fulvous and brown. Lower breast and belly, white. Sides of the body, white, barred with wavy black lines. Outer web of primaries, blackish ; inner web, drab ; axillaries, white ; speculum, pale metallic green, with a broad white band above and below. Back and rump, dark brown. Female—forehead and crown, brown ; sides of the head and neck and foreneck, pale grey, mottled with brown ; chin and throat, pale grey. Mantle, back, rump, scapulars, and upper tail coverts and tail, dark brown. Belly, pale fulvous white ; sides of the body, brown ; axillaries, white ; speculum, brown ; often tinged with green, no white eye band. It affects open water with plenty of floating weeds ; it is seldom shy, but is a very swift and silent flyer and turns and twists far less than the common teal, but dives and swims better than that bird.

Male—Length, 16 inches ; wing,  $7\frac{3}{4}$  inches ; tail, 3 inches. Female—Length, 15 inches ; wing,  $7\frac{1}{4}$  inches ; tail, 3 inches. Bill, dark brown, paler on the lower mandible ; irides, brown ; legs, greenish or slaty. Weight up to 1 lb.

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### THE FALCATED DUCK OR THE BRONZE CAPPED TEAL.

*Eunetta falcata*. Native names : *Kala sinkhur*, Oudh.

*Habitat*.—A rather rare bird in India, but it has been found in Lucknow, Bhawalpur, Jessoore, Purneah, Manipur and Upper Burma.

*Description*.—Male—head, bright chestnut and green ; under tail coverts, black ; white spot on the forehead ; outer web of the primaries, black ; axillaries, white ; upper wing coverts, grey. Speculum, black tinged with bluish green. The female has the head and under tail coverts, black, streaked with fulvous. Male—Length, 20 inches ; wing,  $9\frac{1}{2}$  inches ; tail,  $3\frac{1}{4}$  inches. Female smaller. Bill, black ; irides, brown ; legs and feet bluish. Weight up to  $1\frac{1}{2}$  lbs.

## THE WIGEON.

*Mareca Penelope*. Native names : *Pee san, Patari, Tharia, chota lal ser*, Hind. ; *Parow, Sind* ; *Cheyun*, Nepal ; *Adla*, West Coast.

*Habitat*.—A fairly general cold weather visitor.

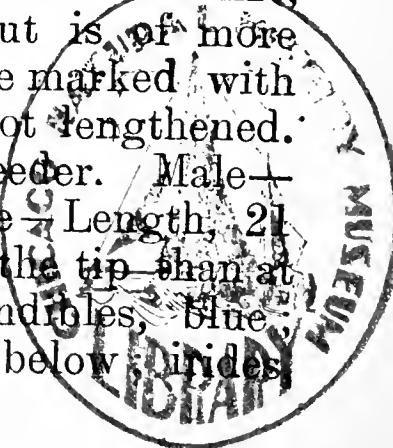
*Description*.—Male—forehead and crown, creamy buff; head and upper neck, chestnut, with tiny black dots; chin and throat, dusky. Mantle, back and scapulars, grey, pencilled with black; rump, grey. Breast, reddish, tinged with grey; lower breast and belly, white; sides of the body, black and grey; tail feathers, brown and ashy, margined with white. Outer web of the primaries, white; inner web, drab; axillaries, white, mottled with brown. Speculum, black and metallic green or entirely brown. Female—forehead and crown, brown, barred with fulvous. Rest of the head, chin, throat and neck, fulvous, spotted and streaked with brown. Upper plumage and scapulars, brown; tail feathers, brown. Lower plumage, white; axillaries, white, mottled with brown; under tail coverts streaked with brown; upper wing coverts, brown. It is a rapid and noiseless flyer, and very shy and when in flocks, is almost impossible of approach. Length, about 19 inches; wing, 10 inches; tail, 4 inches; bill, bluish with a black tip; irides, brown; legs and feet, greyish brown; weight up to  $1\frac{3}{4}$  lbs.

## THE PINTAIL.

*Dafila acuta*. Native names : *San*, *Sinkpar*, Hind. ; *Kokarali*, *Drighush*, Sind ; *Digonch*, Behar and Nepal ; *Dighans*, Bengal ; *Litunga*, Manipur ; *Taubay*, Burma.

*Habitat*.—A winter visitor to every portion of the Indian Peninsula.

*Description*.— Male—head and foreneck, rich brown ; hind neck, blackish ; lower neck, breast, and upper belly, white ; lower belly, minutely spotted with brown ; sides of the body, pencilled black and pale buff ; rump, dark brown ; middle tail feathers, black and long ; axillaries, white, mottled with brown ; outer web of the primaries, blackish ; inner web, drab ; speculum, metallic bronze, with a cinnamon bar above. Female—resembles the male, but is of more sombre plumage, the speculum is brown, the under-tail coverts are marked with brown instead of being black, and the middle tail feathers are not lengthened. It is very shy and its flight is extremely rapid. It is a night feeder. Male—Length, 25 inches ; wing, 11 inches ; tail,  $7\frac{1}{2}$  inches. Female—Length, 21 inches ; wing,  $9\frac{1}{2}$  inches ; tail,  $4\frac{1}{2}$  inches. The bill is wider near the tip than at the base, and in the male is black with the sides of the upper mandibles, blue ; in the female the bill is greyish black above, reddish brown below ; irides brown ; legs and feet, slaty grey ; weight, up to  $2\frac{3}{4}$  lbs.



## THE GADWALL.

*Chaulelasmus Streperus.* Native names : *Mila*, or *Mailta*, *Bhuar*, *Beykhur*, Hind. ; *Peeng hans*, Beng. ; *Burd*, Sind ; *Mail*, Nepal and Behar.

*Habitat.*—Found generally throughout India and is common in Bengal, Assam, Manipur and Arrakan.

*Description.*—Male—crown and hinder part of the head, brown ; rest of the head and neck, almost white, streaked with dark brown ; upper breast, black ; lower breast, white ; upper abdomen, white ; lower ditto, crossed with brown bars. Sides of the body, barred with brown and pale fulvous ; under tail coverts, deep black ; mantle and back, dark brown, pencilled with white ; rump and upper tail coverts, black ; tail feathers, ashy brown. Outer web of primaries, blackish ; inner web, drab ; axillaries, white ; speculum, brown, turning to black. Bill of uniform width throughout. Female—crown and back of the head streaked with black and fulvous ; remainder of the head and neck, fulvous streaked with black. Breast, sides of the body and under tail coverts fulvous, spotted and streaked with brown ; belly, white. Mantle, back, upper tail coverts, scapulars and rump black ; tail, brown. An excellent table bird ; he gives good sport, is a quick riser, gets well away and flies faster than the mallard. Male—Length, 20 inches ; wing,  $10\frac{1}{2}$  inches ; tail,  $3\frac{1}{2}$  inches. Female—

Length, 19 inches ; wing,  $9\frac{1}{2}$  inches ; tail,  $3\frac{1}{2}$  inches. Bill of male, black ; of female, orange brown, variegated with black ; irides, brown ; legs, orange or yellow ; weight up to 2 lbs.

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### THE SHOVELLER.

*Spatula clypeata*. Native names : *Tidari*, *Punana*, *Tokur-walla*, *Ghira*, Hind. ; *Alipat*, Sind ; *Punta-mookhi*, Beng. ; *Thobaha sankhar* (male), *Khikeria sankhar* (female), Nepal ; *Sukchoo*, Behar.

*Habitat*.—Generally distributed over India in the winter.

*Description*.—Easily distinguished from other ducks by having the bill twice as broad near the tip as at the base. A filthy feeder and almost unfit for the table ; it is particularly tame and confiding and difficult to drive from its haunts. It is partial to tanks and even village puddles ; it is a tolerable flyer and not particularly noisy. Male—Length, 21 inches ; wing,  $9\frac{1}{2}$  inches ; tail,  $3\frac{1}{2}$  inches. Female—Length,  $18\frac{1}{2}$  inches ; wing,  $8\frac{1}{2}$  inches ; tail, 3 inches. Bill, in males, is black with a greyish tinge ; in females, the upper mandible is brown, the lower dull orange. Irides from yellow to deep orange ; feet, red ; weight nearly 2 lbs.

## THE MALLARD OR WILD DUCK.

*Anas Boscas.* Native names: *Nilsir*, *Neroji*, Upper India; *Lilgah* (male), *Lilgi* (female), Nepal.

*Habitat.*—A resident of Kashmir and parts of the Himalayas, and a winter visitor to the plains, especially in the Punjab and Sind, also Assam; not so common elsewhere.

*Description.*—Male—Entire head and neck, brilliant metallic green or purple, with a narrow white collar at the base; and the breast a rich chestnut, which is sufficient to distinguish the drake from other ducks. Female—has the head and neck streaked with black and fulvous; upper plumage, dark brown or black, with tail feathers similar. The upper wing coverts are brown; the speculum, metallic purple between two double bands of black and white; the entire lower plumage is fulvous marked with brown. It is a night feeder and unwary when not much worried, a strong flyer, a gluttonous eater, an inveterate diver when wounded and very cunning at concealment. Male—Length, about 23 inches; wing, 11 inches; tail, 4 inches; Female—Length, about 21 inches; wing, 10 inches; tail,  $3\frac{3}{4}$  inches. Bill, greenish yellow, with a blackish nail. Irides, brown; legs, orange; weight, 3 lbs.

## THE MARBLED DUCK.

*Marmaronetta angustirostris.*

*Habitat.*—A cold weather visitor to Northern India.

*Description.*—Male—whole of the upper plumage, silver-grey, with tail a silvery brown-grey and wings silver-grey. The head and neck are buff in tint, with a dark brown eye patch; chin, throat and neck, almost white; breast, white, with greyish brown, and the same on the sides; axillaries, white; under-tail coverts, barred across. Female—differs from the male in being smaller and duller in plumage, with a smaller crest and a less pronounced eye-patch. Male—Length, 18 inches; wing,  $8\frac{1}{4}$  inches; tail,  $3\frac{1}{2}$  inches. Female—Length, 16 inches; wing,  $7\frac{1}{2}$  inches; tail, 3 inches. Bill, bluish grey with a black tip. Irides, brown; legs, greenish grey, with black webs; weight up to  $1\frac{1}{2}$  lbs.

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## THE PINK-HEADED DUCK.

*Rhodonessa caryophyllacea.* Native names: *Lal sir*, *Golab sir*, Hind.; *Doomrar*, Nepal, Terai and Tirhoot; *Saknal*, Beng.

*Habitat.*—M. P., Nepal, Tirhoot, Bengal, Assam and Orissa.

*Description.*—The one point by which the adult male can be distinguished from all other ducks is the head, which, with the hind neck and sides of the neck, are rose pink, while the chin, throat and fore-neck are black. The female resembles the male, but the chin, throat and fore neck are pink and the head is brown. It prefers dense reeds, is gregarious and wary, and is an indifferent bird for the table. Length, about 23 inches ; wing, 10 inches ; tail,  $3\frac{1}{2}$  inches. Bill, pale red ; irides, red ; legs, slaty black ; weight, 2 lbs.

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### THE RED-CRESTED POCHARD:

*Netta Rufina.* Native names : *Lal choonch*, *Lalsir*, Hind. ; *Rattoba*, Sind ; *Doomer* (male), *Sanwa* (female), Nepal and Tirhoot ; *Heroo hans* (male), *Chobra hans* (female), Beng.

*Habitat.*—Largely distributed over India in the winter and very common in Bengal.

*Description.*—Male—forehead brown, and crest cinnamon ; sides of the head, chin, throat and neck, rich red chestnut ; hind neck, black. Mantle, sides of the breast and lower plumage, dark brown. Each side of the body has a large white patch. Rump and upper tail coverts, black ; outer primaries, dark ; inner

primaries, white or pale grey ; axillaries, white ; bill, narrower at the tip than at the base ; head fully crested. The female somewhat resembles the male, but the lower plumage from the bill to the tail is dull white or pale grey, and the sides of the body are brown, with the back and upper wing coverts and tail coverts, pale drab brown. It is a strong but heavy flyer and a rather slow riser ; a troublesome bird to shoot ; a good diver and haunter of deep water with weedy bottom. Male—Length, 21 inches ; wing,  $10\frac{1}{2}$  inches ; tail, 3 inches. Female—Length, 20 inches ; wing, 10 inches ; tail,  $2\frac{3}{4}$  inches. Bill of male, crimson with a pink nail ; bill of female, blackish with tips and sides red. Irides, bright brown ; legs, yellow to orange, with dark webs ; weight,  $2\frac{3}{4}$  lbs.

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### THE POCHARD.

*Nyroca ferina*. Native names : *Boorar nur*, *Lalsir*, Hind. ; *Rutubah*, Sind ; *Cheoon*, Nepal ; *Lallmurya*, Beng. ; *Thordinguam*, Manipur.

*Habitat*.—A winter visitor to all parts of the Peninsula.

*Description*.—Male—with the exception of a white chin spot, the whole head and neck is rich chestnut. Mantle, black ; breast, dark slaty brown ;

belly and sides of the body, pale grey ; under tail coverts, black ; back, scapulars and upper wing coverts, grey, pencilled with black ; rump and tail coverts, black ; tail, grey, freckled with black ; outer primaries, ashy grey ; axillaries, white. The female resembles the male, but is duller in plumage, while the head, neck and mantle are dull reddish brown, and the rump and upper tail covert are dark brown, speckled grey, and the tail is dark brown. It is a splendid swimmer and diver, but a bad walker, a slow riser and an indifferent flyer. It frequents deep water in which it has to dive for its food. Male—Length, 18 inches ; wing,  $8\frac{1}{4}$  inches ; tail,  $2\frac{1}{2}$  inches. Female—Length, 17 inches ; wing, 8 inches ; tail,  $2\frac{1}{4}$  inches. Bill, black at the base and tip, bluish in the middle. Irides, orange yellow ; legs and feet, slaty grey ; weight,  $2\frac{1}{4}$  lbs.

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### THE WESTERN WHITE-EYED POCHARD.

*Nyroca Nyroca*. Native names : *Karchiya, Bhoorar mada*, Hind. ; *Baran*, Sind ; *Malak*, Nepal, Terai ; *Lalbiri, Bhootee hans*, Beng.

*Habitat*.—An uncommon winter visitor.

*Description*—Male—head, neck, sides of the mantle and breast, deep chestnut, with a well-defined triangular white spot on the chin and a broad dark

collar round the lower neck. Back, scapulars, rump and upper tail coverts, black ; tail, brown ; upper wing coverts, dark brown ; sides of the body, dark chestnut; upper belly, white ; lower belly, reddish brown pencilled ; axillaries, white ; outer primaries, much darker than the inner ; under tail coverts, pure white ; bill of equal width throughout. The female resembles the male, but the head and neck are reddish brown instead of chestnut, and there is no collar on the lower neck. It resembles the other pochards in its habits and is such a marvellous diver that it is useless pursuing it when wounded. Male.—Length,  $16\frac{1}{2}$  inches ; wing, 7 inches ; tail,  $2\frac{1}{4}$  inches. Female.—Length, 16 inches ; wing, nearly 7 inches ; tail,  $2\frac{1}{4}$  inches. Bill, bluish black ; irides, white ; legs and feet, lead colour ; weight,  $1\frac{1}{2}$  lb.

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### THE TUFTED SCAUP DUCK.

*Filigula Filigula*. Native names : *Dubaru*, *Ablak*, *Radhooara*, Hind. ; *Turando*, Sind ; *Malah*, Nepal, Terai ; *Nella chilloowa*, Tel. ; *Mirbatho*, Tam. ; *Nirkoli*, Can.

*Habitat*.—Generally throughout India in more or less abundance during the cold weather.

*Description.*—Male—head, breast and upper neck, black, with a metallic gloss ; lower part of the body, mantle and upper breast, black ; lower breast, belly, and sides of the body, axillaries and under-wing coverts, white ; under-tail coverts, black. Back, scapulars, rump and tail coverts, black. Upper wing coverts and tail, dark brown. The female resembles the male except that the head is brown, with a whitish patch on the either side of the base of the upper mandible, while the sides of the body are brown, and the other parts, which are black in the male, are in the female generally brown. It is seldom seen on rivers, being generally found on the sea coast, or on lakes. It is a strong, smooth and easy flyer, dives well and remains submerged for surprising periods. Male—Length, about 17 inches ; wing, 8 inches ; tail,  $2\frac{1}{2}$  inches. Female—Length,  $15\frac{1}{2}$  inches ; wing,  $7\frac{1}{2}$  inches ; tail, 2 inches. Bill, bluish with black tip ; irides, yellow ; legs and feet, slaty blue with black webs ; weight, 2 lbs.

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### THE GOOSANDER.

*Merganser merganser.* Native name : *Areehont*, Hind.

*Habitat.*—A permanent resident in the Himalayas and a winter visitor to the plains in the northern part of the Peninsula.

*Description.*—Male—head, crest and upper neck, black. Lower neck, upper mantle, lower plumage, sides of the body, axillaries and wing coverts, tinged with salmon pink. Lower part of the mantle and upper back, black; lower back, rump, upper tail coverts, grey; outer web of the primaries, black; inner web, drab. Margins of the bill furnished with saw-like teeth (the chief difference from other ducks), while the bill itself is very narrow. The female has the chin and throat white and the head, crest and neck, chestnut-brown. The whole upper plumage is grey, the whole lower plumage is white. It is an incessant diver both up and down stream and a voracious eater, and its flesh is extremely rank and unpalatable. It haunts fresh water, close to forest. Male—Length, 26 inches; wing,  $11\frac{1}{2}$  inches; tail, about 5 inches. Female—Length, 24 inches; wing,  $10\frac{1}{2}$  inches; tail,  $4\frac{1}{2}$  inches. Bill, vermillion in both sexes; nail, black; irides, red; legs and feet, red; weight,  $3\frac{1}{4}$  lbs.

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### THE SMEW.

*Mergus albellus.* Native name : *Neheune*, Hind.

*Habitat.*—Fairly common in the northern parts of the Peninsula.

*Description.*—It resembles the Goosander, having the bill furnished with saw-like teeth and following it in general outline; but the bill in both sexes

is bluish grey with a whitish nail, the legs and feet being of the same colour. The male has the crown of the head white with some black bars on the sides of the breast. The female has the crown of the head chestnut and has no bars on the sides of the breast. They are excellent flyers and very silent on the wing. They swim and dive splendidly and are active restless birds, being extremely rapid in their movements and feeding entirely under water. Male—Length,  $17\frac{1}{2}$  inches; wing, 8 inches; tail,  $3\frac{1}{2}$  inches. Female—Length 16 inches; wing,  $7\frac{1}{4}$  inches; tail,  $3\frac{1}{4}$  inches. Bill, legs and feet, bluish grey; irides, red; weight,  $1\frac{3}{4}$  lbs.

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### THE WOODCOCK.

*Scotopax Rusticola.* Native names: *Sim teetur, Tutatur*, Hind.; *Chamun*, Kangra; *Chinjarol*, Chamba; *Sham teetur, Sham pookra*, Kumaon; *Kangtruk*, Manipur; *Belatee chaha*, Beng. and Chittagong.

*Habitat.*—The hills in summer, the plains in winter.

*Description.*—Too well known to need any, while the plumage is too variegated to admit of minute description. But it may be noted that the bill is straight, the terminal half being pitted. The primaries are notched with rufous on the

margins of both webs. There are cross bars on the hinder part of the crown. Tail feathers, soft, broad and black, with the tips on the underside silvery white. The sexes are alike. It is generally found singly or in pairs, although they may be met with in good numbers not far from each other. In India this bird is tame and confiding and affords tolerably easy shots. It is a night feeder, prefers running water and oak woods. The little pointed feather of the woodcock's wing, much prized of painters, is the outermost primary covert. Length, about 14 inches ; wing,  $7\frac{1}{4}$  inches ; tail, 3 inches ; bill from gape, up to 3·3 inches. Bill, dark brown ; irides, brown ; legs and feet, slaty grey ; weight, not exceeding 12 oz. Tail of twelve ordinary feathers.

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### THE WOOD SNIPE.

*Gallinago nemoricola.* Native name : *Bunchaha*, Nepal.

*Habitat.*—Commoner in the eastern portions of the Empire than elsewhere.

*Description.*—Sexes alike. Forehead and crown, deep black, with a pale buff, longitudinal streak down the middle of the crown. A whitish band over the eye ; a black band from the eye to the bill ; chin, white ; throat, sides of the head, whitish with blackish spots and streaks ; neck, buff, blotched with black.

Back, black ; primaries, plain ; inner scapulars, black, with a buff margin ; rump, dark brown, barred with white ; lower part and upper tail coverts, rufous, barred with brown. Middle tail feathers black, terminated with chestnut, a wavy black bar and a whitish tip. The lateral feathers are ashy, barred with brown and tipped ; white chest and breast fulvous, mottled with black, sides of the body, fulvous, barred with black. Belly and thighs, dull white, barred brown ; under-tail coverts, fulvous and white, barred brown. Eighteen tail feathers, the six middle ones soft and broad, the outer ones stiffer diminishing in width and length. Length, 12 inches ; wing,  $5\frac{1}{2}$  inches ; tail, 2 inches ; bill,  $2\frac{1}{2}$  inches. Bill, brown ; irides, brown ; legs, slaty green ; weight, 6 oz.

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### THE SOLITARY SNIPE.

*Gallinago Solitaria*.—Native name : *Chaha* (general Hindustani name for all Snipe).

*Habitat*.—The Himalayas, from Kashmir to Assam.

*Description*.—This snipe differs from the wood snipe, in having the upper plumage delicately marked and cross barred throughout, the pale markings being nearly white ; and there are none of the large black patches on the back and

scapulars which characterise the wood snipe. They do not affect cover and may often be seen on the margins of streams and pools, and their flight is precisely like that of the pintail snipe, though less rapid. Sexes alike. Length,  $12\frac{1}{2}$  inches; wing,  $6\frac{1}{4}$  inches; tail,  $2\frac{1}{2}$  inches; bill,  $2\frac{1}{2}$  inches. Bill, yellowish brown, and black at the tip; irides, brown; legs and feet, olive; weight, up to 8 oz. The tail feathers vary in number from 18 to 28; the middle eight are broad and soft and the outer ones narrow, short and stiff.

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### THE COMMON OR FAN-TAIL SNIPE.

*Gallinago gallinago*. Native names: *Chaha*, Hind.; *Bharka*, *Bharak*, Nepal; *Chenga paki* (eeshnape), Beng.; *Tibud*, *Panlowa*, Mahr.; *Ulan*, Tam.; *Mukuparedi*, Tel.; *Chenga*, Uriya.; *Cherayga*, Assam; *Chek Londi*, Manipur; *Mayawool* (Snite), Burma.

*Habitat*.—A winter visior to the entire Indian Peninsula.

*Description*.—Sexes alike, and too common to need detailed description. It closely resembles the pintail except that the outer web of the first primary is white instead of brown, and it has white margins to the tips of the outer secondaries, which the pintail often has not, and all the tail feathers are soft and broad; they number fourteen (sometimes sixteen), and the laterals are not narrow

nor stiff. Length up to  $12\frac{1}{2}$  inches; wing,  $5\frac{1}{4}$  inches; tail,  $2\frac{1}{4}$  inches; bill,  $2\frac{3}{4}$  inches. Bill, greenish brown, darker towards the tip; irides, brown; legs and feet, brownish green; weight,  $4\frac{1}{4}$  oz.

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### THE PIN-TAIL SNIPE.

*Gallinago Stenura*. Native names, same as those of the common snipe.

*Habitat*.—Same as that of the common snipe.

*Description*.—Sexes alike. It closely resembles the common snipe save in the differences noted in describing the last-named bird, while the outer tail feathers are extremely narrow and stiff, and the bill is generally shorter and not so wide at the tip. The bird is lighter than the common snipe.

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### THE JACK SNIPE.

*Limnocryptes gallinula*. Native names, same as those for other snipe.

*Habitat*.—Throughout India.

*Description*.—Sexes alike. The bird generally resembles the common snipe, but it has no longitudinal pale band on the crown. The tail is composed of twelve

ordinary soft feathers, rather narrow and pointed. It is much smaller than the common snipe and pintail, the length being  $8\frac{1}{2}$  inches ; wing,  $4\frac{1}{2}$  inches ; tail, 2 inches ; bill,  $1\frac{1}{2}$  inch ; weight,  $2\frac{1}{2}$  oz. Bill, horn colour, black at the tip ; irides, brown ; legs and toes, pale olive green. It is rather solitary in its habits, lies very close, seldom utters a note, flies a short distance and drops suddenly, and is considered the best eating of all the tribe.

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### THE PAINTED SNIPE.

*Rasstratina Capensis.* Native names; *Ohari*, Nepal; *Kone*, *Konchata*, Santhal; *Baggarji*, Beng.; *Tibud*, *Panlowa*, West Coast; *Mailulan*, Tam.

*Habitat.*—The entire Indian Peninsula.

*Description.*—Male—A broad buff band from the forehead to the back of the head, margined with a black band mottled with white and followed by another band of dark brown. Buff ring round the eye. Hind neck, ashy brown, barred with black. Scapulars, ashy brown, blotched with black ; rump, grey, barred with narrow black lines and slightly mottled with white. The tail feathers, fourteen in number, are bluish, with narrow wavy black bars and broad buff bands. Primaries and outer secondaries, bluish grey, marbled with black and

white on the inner web, and black and buff spots and blotches on the outer web. Inner secondaries olive brown, marked with black. Sides of the head and throat, white, streaked with brown ; chin, white. Lower plumage, pure white. The bill is curved downwards towards the tip. The female differs from the male in the following respects : circle round the eye, white. The whole of the closed wing is olive green, barred with black ; there is a black band under the eye ; sides of the face, throat, foreneck, and a broad collar round the neck are chestnut. But the chief difference lies in the female having the outermost scapular feathers very narrow, pointed and pure white. It is generally found on marshy ground where there is much grass. It is a miserable flyer, settles quickly and seems more intent on displaying its plumage than on getting away, but when it has settled it is not easy to flush again. Length, 10 inches ; wing, 5 inches ; tail,  $1\frac{1}{2}$  inches ; bill,  $1\frac{3}{4}$  inches. Legs and bill, olive brown ; irides, brown ; weight,  $6\frac{1}{2}$  oz.

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# THE RIVER SPORTING FISH.

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## THE MAHSEER.

*Barbus Tor* or *Barbus Mosal*. Native names: *Mahseer*, *Mahaseer* or *Mahasaula* and *Naharm*, Hind.; *Jungapoetia*, *Burapatra*, Assam; and *Peo-Meen-Candee*, Tam.; *Kukhiah*, Punjab; *Joongah*, *Betiah*, *Kurreah*, Sind.; *Kurcha*, Kurku; *Kurchee*, Gond.

*Habitat*.—Generally throughout India in rapid streams and deep pools not far from hilly regions.

*Description*.—Family *Cyprinidae*. No teeth in any part of their mouths, the only teeth being situated on a pair of bones in the throat, just below the gill cover. No adipose fin, body covered with scales, head naked. Mouth frequently with barbels. Dorsal ray bony and strong. Twenty-five to twenty-seven scales along the lateral line, not more than two rows between it and the ventral fin. Head contained  $3\frac{1}{2}$  to  $3\frac{3}{4}$  times in the total length; weight up to 80 or 100 lbs. and sometimes more.

He may be fished for with dead bait, spoon, phantom, fly, gram, live bait or paste. And among these are the Dee Minnow, Coxon's Spinner, the Archer Spinner, and the Chapman Spinner and spoons of all sizes. Among flies the Blackamoor, the Cock-o'the-Walk, and the Smoky Dun: the parched gram or *chunna* is threaded on the hooks through holes drilled in the grain, just big enough to take the gut and shank. Live bait (of any size up to half a pound in weight) used with Colonel Parson's flight of hooks or the Jardine tackle; paste of almost any sort made of bread, flour, ragee or atta, scented, or unscented, fowls' entrails or crabs are handy when all else fail or when other lures are un procurable.

There are fifty-six varieties of this family (cyprinidæ) distinguished by having two barbels, one barbel, or no barbels at all, distributed throughout India, and all answering to the generic name of *Barbus*.

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### THE CHILWA.

*Chela argenta* or *Chelagora*. Native names: *Vellachi*, Tam. and Can.; *Bay ree-saie*, Tel.; *Boonchpootie*, Bengal and Orissa; *Took*, Punjab; *Chellhul* and *Chela* or *Chilwa*, Hind.; *Dundia*, Kurku; *Dundie*, Gond.

*Habitat*.—Throughout the Indian rivers and very common.

*Description.*—Bright silvery fish, long in the body, with small heads and up-turned mouths, the dorsal fin being placed very far back. Pectoral fins very long. No spine to the dorsal fin. Seven rays in the ventral fin. Abdomen compressed, forming a sharp ridge. Very flat sides. Dorsal fin contains nine or ten rays. The anal varies in length. A surface feeder, a ready taker of the fly and a remarkably good eating fish. They thrive in still water and affect the still pools in rivers, the majority run from six to nine inches in length, though some kinds run to but  $2\frac{1}{2}$  inches. A trout rod, three flies and a short line is the ticket. There are twelve varieties of the genus *Chela*.

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### THE BLACK SPOT.

*Barbus Filamentosus* or *Barbus mahecola*. Native names, same as for the Mahseer.

*Habitat.*—Southern and Western India.

*Description.*—Length, 6 inches. No barbels. Body strongly compressed. Rays of the dorsal fin extended into long filaments. Caudal fin red, tipped with black. Lateral line complete. Dark spot on one lateral line near the tail. Weight, 5 or 6 to the pound. They rise greedily to any dun, purple or black

fly and require a small hook. They swim in shoals. A curious change occurs in this fish immediately after death, the whole body becoming scarlet.

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### THE INDIAN TROUT.

*Barilius Bola or Bola goha.* Native names : *Aart candee*, Tam.; *Bugguah*, Ooriya; *Korang*, Assam; *Bola*, Bengal; *Pahtah*, Punjab; *Chagunee*, Behar.

*Habitat.*--Throughout India.

*Description.*--Length from 4 to 12 inches; short dorsal fin. Wide mouth opening forwards. No barbels. Ten dorsal rays; ten anal rays; scales about 90. Fins orange, caudal fin edged with black. Colour, silvery with irregular greenish spots on the sides, reminding one strongly of a trout. Weight from  $\frac{3}{4}$  lb. to 2 lbs. It takes the fly and small spinning bait, especially a white moth and small phantom. It is shy and feeds best towards evening. It will sometimes take paste, and is a real good little sporting fish.

The lesser Barils, of which there are 18 varieties, found in most of the Indian rivers, are nearly all distinguished by silver body and green spots. They are very game and rise to a fly like a trout. Of active habit, they prefer

brisk streams among rocks and are usually found in Mahseer rivers or those frequented by the Black Spot. They do not run to more than 4 oz. The small black trout fly on a No. 000 sneck or kirby, is very useful.

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### THE FRESH WATER SHARK OR BOALLI.

*Wallago attu*. Native names : *Boal*, or *Pangash*, Beng.; *Moinsia Boal*, Ooriya; *Vale* or *vahlah*, Tam.; *Gwali* or *Mullee*, Punjab; *Bawali*, Hind.; *Lutchi* and *Bawari*, Tirhoot; *Barali*, Assam; *Poikee*, Sind.; *Pairdom*, Kurku; *Paren*, Gond.

*Habitat*.—A tank and river shark found throughout India.

*Description*.—Length anything up to 6 feet. A voracious and filthy feeder, a river scavenger, but a good fish to eat and much in request among low Mahomedans. Anal rays 86 to 93. Maxillary barbels nearly twice the length of the head. Pectoral spine feeble, not serrated exteriorly. Lower jaw prominent, anal and caudal fins confluent, the latter forked. This fish will take a dead bait on a gorge hook, or live bait, such as used for Mahseer. Use wire traces, have a gaff and disgorger handy, and take care of his terrible jaws when removing hooks.

## THE GOONCH.

*Bagarius Yarrellii.* Native names : *Goonch*, Hind. ; *Sahlun*, Ooriya ; *Goonch*, Punjab.

*Habitat.*—The large rivers of India and sometimes in tanks.

*Description.*—A finny monster attaining a length of 6 feet and weight of over 250 lbs. Extremely ugly with lurid colours. Anal rays 15, maxillary barbel very broad at the base, extending beyond the end of the head. Dorsal, pectoral and caudal fins produced into long filaments. Body, brown, sometimes with a purplish tinge with irregular broad crossbands. Its flesh is yellow and esteemed by the natives. The tackle may be the same as dressed for Mahseer on wire gimp unless a short shrift is intended when a good stout cord may be used. It feeds from dusk till two hours after and from dawn till about 8 o'clock ; the best bait is the bahm or spiny eel.

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## THE SILOND.

*Silondia Gangetica.* Native names : *Silond*, Hind. ; *Pangash*, Beng. ; *Wanjon*, Tel.

*Habitat.*—The larger rivers and estuaries.

*Description.*—A very large fish of the fresh water shark type attaining 6 feet in length, colour silvery, fins stained with grey, two short barbels. Adi-

pose fin very short, dorsal short with a spine. Scaleless. The best bait is a spoon or fish, or any filth; but it will take a fly. It is a magnificent fighter and a muck eater of the most virulent type.

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### THE TENGARA.

*Macrones Seenghala* or *M. Teengara*. Native names : *Tengra*, Hind.; *Alli* or *Addi*, Ooriya; *Goontea*, Beng.; *Cuaree*, Malabar; *Kutla*, Tam.; *Kutukhugger*, Punjab; *Kagur Singharee*, N.-W. P.; *Kanya Tengara*, East Beng.; *Kors*, Assam.

*Habitat*.—Throughout India.

*Description*.—Anterior and posterior nostrils separate, the latter having a pair of barbels. Adipose fin long. Ten anal rays. Dorsal spine smooth. Four dark bands along the side and a black mark above the pectoral fin. Length, 6 inches. Eight barbels, the maxillary barbels extending to the caudal fin. There are 18 varieties of *Macrones* ranging in length from 2 inches (*M. Nangra*) to 2 or 3 feet (*M. Aor* and *M. Lamarrii*). They are to be caught with live bait. Good eating.

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### THE CHETUL OR SEETUL.

*Notopterus Chitala*. Native names: *Chetla*, Beng.; *Ambutan-wallah*, Tam.; *Seetul* or *Chetul*, Hind.; *Gundum*, Sind.; *Moh* or *Mohi*, Punj.; *Chitol*, Ooriya; *Bunnih*, Tirhoot.

*Habitat.*—Throughout the Indian rivers and tanks.

*Description.*—A bright silvery fish with a very bowed back and an almost straight abdomen. Body much compressed. Scales very small. Lateral line distinct. Abdomen with a double serrature. Upper profile of the head concave. Narrow bands of small teeth on both jaws; two series of teeth on the tongue. Anal fin very long, and united with the caudal; dorsal fin very short. Ventral fins wanting. Dorsal rays 8 to 10; anal, 110 to 125; scales, 180. This fish is sometimes marked with dark crossbands on the back, and with round black ocellated spots along the lower part of the tail. Its mouth is remarkably small, and it is best taken by slow spinning and constant waits on the bottom, and using a sensitive rod, for it is a very gentle nibbler. It runs from a few inches in length up to nearly 4 feet, and has a peculiar habit of rolling over and over on the surface of the water, and jumping clean out of it towards evening.

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### THE BUTCHWA, AND THE CHERKI.

*Pseudeutropius Garua* and *P. Murius*. Native names: *Butchwa*, Hind.; *Battuli* or *Bopotassi*, Ooriya; *Bikree*, Oudh; *Chellee* or *Puttul*, Panj.; *Dhonga Nu*, Sindh; *Nahkellettee*, Tamil.

*Habitat.*—Throughout India.

*Description.*—These two fishes are so much alike that it is extremely difficult to distinguish between them. They belong to a genus of which there are eight varieties, and their characteristics are as follows :—Length from 4 to 12 inches. Very small adipose fin ; dorsal fin short, with a spine. Barbels eight. Dorsal and pectoral spines serrated. Eye situated behind the angle of the mouth, and even partly on the lower surface of the head. It may be taken with an orange or black trout fly on a No. 9 Limerick. It requires a big hook as it is rather good at getting off. It can be taken also with a small spoon, and as the fishing is generally at the surface, no sinker is required with a spinning bait. Spin in rough water against stream, and examine the gut after catching half a dozen, as their teeth are very sharp.

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### THE AMVARI.

*Mugil Corsula.* Native names : *Anvarie* or *Bhoondur*, Hind. ; *Corsola* or *Cullah*, Beng. ; *Corsola*, Tirhoot ; *Undala*, U. P.

*Habitat.*—Bengal and North-West Provinces.

*Description.*—Length up to a foot. It is a small fresh water mullet with 49 to 50 scales. Its head rises higher than the back ; the eyes are protuberant ;

there are rows of dark dots on the sides. It swims in small shoals, the eyes only showing above water ; and, as it takes no kind of bait, it must be shot with small shot, a boat being handy to retrieve it as it is apt to sink immediately it is killed. The natives spear it. It is one of the most delicious of Indian fish, and should be cooked as soon as possible after it leaves the water. It is excellent smoked.

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### THE PUFTA.

*Callichrons bimaculatus*. Native names : *Pufsta*, or *Pursa*, Hind. and Beng.

*Habitat*.—Throughout India.

*Description*.—Length up to 10 inches. No adipose fin ; dorsal very short. Barbels four. Lower jaw projects beyond the upper. Eye behind and partly below the cleft of the mouth. There are eight varieties of the Pufta, most of them good fly takers. It is a rich, fine flavoured fish.

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### THE MURRUL.

*Opheocephalus Marlius*. Indian names : *Murrul*, Hind. ; *Bora*, Bhutan ; *Sowlee*, Ooriya ; *Bhangon*, Beng. ; *Charkoor*, Sindh ; *Choaree Veral*, Burra

*Chang* or *Hal maeh*, Assam ; *Cooravu*, Mal. ; *Dowlah* and *Kubrah*, Panj. ; *Hoorina* and *Murrul*, Can. ; *Poola Chapa*, Tel. ; *Seulie*, Kurku ; *Samal*, Gond.

*Habitat*.—Throughout India ; a predaceous fresh water fish.

*Description*.—There are eight varieties of this snake-headed fish which grows up to 3 or 4 feet. It varies much in colour, but there is always an eye-like spot on the caudal fin in adult specimens of the true murrul, and five large irregular dark marks along the side below the lateral line. *O. punctatus* is of a dirty green colour, with dark stripes and bars not unlike *O. Gachua*. *O. Barca* is dark green above with yellow sides, the body thickly covered with irregular red and black spots (very common in Bengal and good eating), while *O. Striatus* is dark grey above with dark bands down the body. It exists for a long time out of water. It is long in shape, large of mouth, head and body covered with scales. Long dorsal and anal fins, without any spines, teeth in the jaws, and on the palate. It is found in tanks, also in rivers. Its habits are something like those of the pike, but it is a bad fighter, and bores to the bottom. When caught, beware of its teeth. It feeds morning and evening and is rather shy. It may be spun for with Mahseer bait and tackle; it is partial to frogs, but will take paste bait when hungry, especially in tanks.

# THE ESTUARIAL SPORTING FISH.

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## THE BAMEEN.

*Polynamus tetradactylus.* Native name: *Bameen*.

*Habitat.*—The tidal backwaters and estuaries on both Indian coasts.

*Description.*—A strong, hard mouthed fish requiring stout tackle and a wire gimp trace. It attains to 6 feet and upwards in length, and sometimes exceeds 300 lbs. in weight. It is excellent eating. It ascends higher up the rivers than most estuarial fish. It takes a fly such as is used for Bass, but will take dead bait, meat, a spoon, etc., and a piece of red rag. It is a good fighter.

*P. Indicus* is found in the same waters, but it seldom exceeds 4 feet in length, and but rarely above 20 lbs. in weight.

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## THE BECKTIE.

*Lates calcarifer.* Native names: *Becktie*, Hind. and Beng.; *Kaulanji* and *Madavu*, Canarese; (The Nair fish of Europeans in S. India); *Dungara*, Sindh; *Paddec Neem* or *Nair-Neem*, Mal.; *Koduwa*, Tam.; *Bandukopa* or *Bondumekum*, Tel.; *Bhekkut*, Ooriya.

*Habitat.*—The estuaries of the Indian rivers.

*Description.*—The salt water becktie runs from 12 to 60 lbs. in weight, and is often found in company with a bameen. It is silvery, with a bronzy sheen on the back. The adults assume a humped back. Stout tackle, such as used for the fresh water shark or the mahseer, with a larger bait is recommended. They take best in discoloured water, feeding at night on the flood tide, and give good play. They require slow spinning, as they are “picksome” biters. The best time for day work is during the monsoon when the waters are thick, at other times at night.

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### THE GREY PERCH, AND THE RED PERCH.

*Chrysophrys berda*, and *Lutianus roseus*. Native name : *Kembari*, Can.

*Habitat.*—The Indian estuaries.

*Description.*—Very similar to the English sea perch, running up to 5 lbs. in weight. It is very partial to a prawn bait; the tackle should be dressed on No. 4/0 wire gimp.

## THE MEGALOPS.

*Megalops Cyprinoides.* Native names: *Punnihowa* and *Nahan*, Ooriya; *Kurmi*, Malabar; *Moran Kund*, Tamil; *Ngatan-youet*, Burma.

*Habitat.*—The estuaries and tanks near the coasts.

*Description.*—Projecting lower jaw. Abdomen flat, not trenchant. A narrow bony plate between the mandibles. Scales large and firmly attached. Bands of villiform teeth on the jaws. Dorsal rays, 17 to 20; anal, 24 to 27; scales, 37 to 42. They are about the same size as mackerel, and seem always hungry. They may be taken with dead bait and a float or with a May fly or Carnatic carp fly. They are predaceous and not good eating.

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## THE SEER FISH.

Native name: *Seer*.

*Habitat.*—The Indian estuaries.

*Description.*—This is more properly a sea fish, though it is found in our estuaries. It runs up to 60 lbs. in weight, quite an average bazar fish weighing from 15 to 20 lbs. Excellent eating, and is taken in the same way as the bameen and the becktie.

# THE TANK SPORTING FISH.

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## THE CUTLA.

*Cutla Buchanani.* Native names : *Cutla*, Hind. and Beng. ; *Boassa*, U.P. ;  
*Botchee*, Tel. ; *Taila*, Panj. ; *Tambra*, Bombay.

*Habitat.*—Tanks throughout India. It is represented by a single species.

*Description.*—A carp-like fish which attains a very large size, sometimes nearly 100 lbs. It has a very large head, the length of which is contained three times in the total. The snout is broad, and the mouth turned upwards. There is no upper lip. It grows quickly, and is wholesome but coarse food, though much esteemed by Bengalis.

It is a bottom feeder, and gives tolerable play. Like most tank fish, it is a shy and gentle nibbler. It is fished for with every sort of paste bait—flour, atta, rice flour, gram flour, chuppatis, kaju nut and boiled rice, bread, etc., mixed with rotten cheese, aniseed, ghee, honey, and other scented or evil-smelling ingredients. In fishing, the bait must rest on the bottom of the tank, so it

is essential that the bottom in front of the fisherman and for a good space around should be absolutely cleared of all weeds and grass. Liberal ground baiting is necessary, and there are innumerable and highly-vaunted native nostrums in this connection. Here are a few of the ingredients of ground bait used for this and all tank fish :—bran, rice dust (*chowl ka coora*), fried oil cake (*kulli*), *methie*, *jeera*, *mungaila*, *tuj*, aniseed, rotten cheese and the lees of country liquor—all of which can be had in the local bazaars. A selection of these is pounded, and mixed with mud into balls. Besides paste the Cutla and other tank fish will take the grubs of wasps and bees, maggots, worms (occasionally), and pieces of raw prawn. A single stiff bamboo rod and winch with country-made tusser line, the special hooks for Rohu (now generally imported) or the country-made hooks (the best), peacock quill float attached in the native style, is the tackle required. Quick striking is essential. A strong *machan*, built at least 10 feet from the bank, is conducive to comfort and success. No landing net or gaff is required ; any fish from 5 lbs. upwards when brought in to the bank may be safely landed by a native simply placing his hands under the fish which will allow itself to be carried many yards in shore without the slightest struggle. Tank anglers are pestered by those inveterate bait stealers, prawns and crabs. A good tip is to tie a large quantity of fowls' entrails to a brick or stone, passing the string several times round the entrails and leaving about a foot of string between them and the

brick. This, thrown in a few feet from the water's edge and about 6 ft. on either side of the float, will keep these pests busy most of the day. A few handfuls of dall thrown around the bait are useful in keeping away crabs. To be a successful tank angler in India one must discard all knowledge of bottom fishing as practised in England, and unreservedly adopt native methods.

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### THE ROHU.

*Labeo Rohita.* Native names : *Rohu* and *Roe*, Hind. and Beng.

*Habitat.*—One of the commonest Indian tank fish ; also found in rivers.

*Description.*—Length up to  $3\frac{1}{2}$  feet. Deep in form, narrowing rather suddenly to the tail, usually two barbels only. Scales, 41 ; dorsal rays, 16. Lips fringed, fins tinted red. There are several varieties as in all much domesticated fish. It is good eating when not too large. Its habits and the methods of capturing it are the same as those of the Cutla.

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### THE CALBOSE OR KALA-BANS.

*Labeo Calbasu.* Native names : *Kalboshe*, Beng. ; *Calabans*, Hind. ; *Culotee*, C. P. ; *Kunda*, N. Beng. ; *Nullagundu Menoo*, Tel.

*Habitat.*—Throughout India.

*Description.*—A very common fish, dark in colour, generally blotchy, and very shiny, lips fringed. Excellent eating.

Baits, tackle and method of fishing same as for Cutla.

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### THE MIRGIL.

*Cirrhina Mrigala.* Native names: *Mirgil*, Hind. and Beng.; *Morukkee*, Sind; *Naim*, N.-W. P.; *Mori*, Punjab.

*Habitat.*—Hindustan generally.

*Description.*—A fine good-looking fish with bright golden, or silvery, scales, and good eating, though bony. It attains a weight of 20 lbs. and gives very good play, a 10-lb. Mirgil showing as good a fight as a Rohu twice that weight.

Bait, tackle and methods of fishing same as for Cutla.

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### SEASONS FOR FISHING.

BENGAL, TIRHOOT AND ASSAM.—Mahseer and other river fish from 1st July to 15th November; September and October being the best months.

THE PUNJAB.—From 1st April to end of October.

MADRAS.—March to October, with May and June for preference.

BOMBAY.—Same as Madras.

TANK FISHING, throughout India, during the hot months, from April to September.

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### CARE OF FISHING TACKLE.

*The Rod.*—A well-made split bamboo or wood rod should last for years if proper care is taken of it. Each joint, after a day's fishing, should be wiped dry very carefully and bent into shape, if it has a set, before putting away; and a drop or two of sperm oil should be rubbed over the rod before going out again with it. When laying a rod aside for the season, it should be carefully examined and all damages repaired; the ferrules and bands should be thoroughly cleaned and new plugs fitted to the joints. Take the rod apart, wipe the joints dry, and lay them away in their case in an apartment where the temperature will be dry and uniform, not over 50 degrees. If a case is used, do not tie the strings or bands too tightly; this would be likely to bend the tip and second joints. Under no circumstances let the rod stand near the chimney, and the other extreme of cold in an outbuilding should be avoided. Changes of temperature destroy the pliancy and stiffness of a rod. To insure the continued equal distribution of strength the rod should be laid flat on the floor or a shelf, instead of being stood on end in a corner, and under no condition should it be left jointed and hung on pegs.

*The Reel.*—Should be taken apart, thoroughly cleaned, and then oiled slightly. Put the parts together, and place the reel in a dry drawer or closet of moderate temperature.

*Lines.*—All lines should be reeled off and stretched from end to end on a sunny morning and left in the air for a few hours. They should then be overrun lightly with a bit of woollen cloth or chamois to remove any taint of mildew or other matter, and then be wound upon the reel, but not too tightly. If frayed portions are discovered, the line should be condemned and the good parts kept for miscellaneous uses.

*Leaders.*—Will keep for years if laid away in a dark place, where it is not too warm or too damp, but they should be tested before using.

*Flies.*—The best thing to keep flies in is a pasteboard box tightly and closely wrapped in oiled paper. They will then need no moth preventive.

*Fly Books.*—Should be perfectly dry and wrapped tightly in wax cloth.

*Hooks.*—Do not stick their points in cork and stow them away, for if the atmosphere is slightly damp, or the cork not absolutely dry, rust will occur. The best plan is to wrap the hooks in oiled paper before putting them away. Bait-boxes and creels should be thoroughly cleansed with warm soda-water, and, when dried, it is well to sprinkle them with a little carbolic acid, or a wash of carbolic acid soap can be used.

# CAMP EQUIPMENT.

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It is quite beyond the scope of this little book to enter into an exhaustive review of the many matters embraced in the title of this chapter. So much depends on the length or brevity of the purse, on the conditions, seasons, and places in which one makes camp, so that it must be left largely to the individual to decide what shall be taken and what shall be left behind—the far more important consideration, as experience teaches us. But whether our shikaring expeditions partake of the nature of the glorified viceregal shoot, or whether we have to content ourselves with the humble week-end outing after snipe and small game, there are certain things necessary to our reasonable comfort and convenience, which it is as well to bear in mind, and to which end this chapter aspires to be an *aide memoire*.

## TENTS.

The Kabul tent with its double-fly making it equally suitable to hot or cold climates, is generally acknowledged to be the best for shikar purposes, where

transport is limited, and lightness is a desideratum. The officers' 80 lbs. light field service tent may be had in two sizes— $8 \times 10$  ft. and  $8 \times 8$  ft., and may be supplemented by extras in the shape of bath-room and verandah.

Government pattern,  $8 \times 14$  ft., weight 80 lbs., answers very well; as also the double-fly Native Officers' tent similar in appearance to the Kabul pal, but with lower poles  $6 \times 6$  ft., weight 60 lbs. These should answer all purposes for a single individual.

Willesden canvas paulins are widely used in Burma instead of tents. These paulins ( $16 \times 10$  is the most convenient size) are portable, quicker put up and more airy than tents: if you have elephant or cart transport they can be used to cover the kit.

For servants there are several good tents, such as the Tente d'Abri, which is composed of a single-fly of stout drill, dyed khaki or tan,  $8 \times 7$  ft., 20 lbs., and  $7 \times 6\frac{1}{2}$  ft., 16 lbs., or the ordinary servants' pal which ranges from 20 lbs. to 2½ mds., in six sizes, from 6 ft. square to 15 ft. square inside. Ground sheets of Willesden canvas are most comfortable and protective when the ground is damp, and are useful coverings during wet weather.

*Tents for the Himalayas.*—A light double-fly tent of tanned canvas, or green Willesden canvas, 7 ft. square both flys to peg to ground, with jointed poles and cross pole, can be made under 60 lbs. in weight; *one man's load*. A chick should

be made to fit the front, and the back need have no entrance. A small window is useful at the back. Outerfly 7 ft. high, inner 6 ft. 6 ins. *A servant's tent* can be single-fly, of water-proof canvas, lined with blanket stuff. Size about 7 ft. square, with a waterproof ground sheet. *A small tente d' Abri* should also be taken of a "flying camp."

*Waterproof sheets*,  $7 \times 7$ , with eyelet holes all round, are very necessary: and a common umbrella or two will often be found useful.

I have found the tents manufactured by the Elgin Mills Company, Cawnpore, to be most satisfactory in every way, and they cater specially for the Indian sportsman. *Verb. sap.*

#### CAMP FURNITURE.

*Beds.*—There are many excellent patent beds which combine all the qualities necessary for this item. I cannot attempt to recommend any, seeing that ideas of comfort vary, but it would be as well, before deciding on any of these patents, to consider their ability as weight carriers; for a heavy man will find the somewhat primitive arrangement of four legs, four poles and canvas or leather infinitely preferable to some of the "waistcoat pocket" arrangements now on the market.

*Bedding.*—Whatever bedding is carried, a waterproof sheet or a waterproof valise is a *sine qua non*. A mosquito net of ordinary mesh and one of *mull-mull* when sandflies are about.

Sleeping bags and valises of various designs and makes, such as the Wolseley, are extremely useful in hill work, and when on the march, may be used as receptacles for various bath and toilet requisites. Of course on occasions a bed of dry bracken or the young branches of the pine piled a foot high is not to be despised for its softness, elasticity, and fragrance. A *Seetulputtee* mat to sleep on is a cool and comfortable accessory for the hot weather.

*Bath, basin and bucket, &c.*—Can be well made out of green Willesden canvas, which is both water and rot-proof. A wide strap fitted with hooks and buckled round the tentpole, makes a good clothes horse.

*Boxes.*—Mule-trunks, 2 ft. long  $\times$  1 ft. wide, and 15 ins. high, are handy, and form an ordinary cooly load; yak-dans of leather, 22 ins. long  $\times$  14 ins. wide  $\times$  14 inches high, are also recommended for hill work. Messrs. Eroom & Co., of Calcutta, make, I believe, a patent combination of yak-dan and bed on the Kinloch principle which is worth consideration. Yak-dans and mule-trunks may be procured at Cawnpore, Peshawar, and other centres. In the

plains and hills, baskets covered with leather are excellent for carrying camp kit and stores, and in the hills the common *kiltā*.

*Folding tables, chairs, stools, wash-stands* and other gear, their name is legion ; many are excellent, others are best left alone. Those which exhibit a combination of light wooden slats and iron supports on the girder principle are, as far as my experience goes, cheap and good.

*Lamps*.—Now-a-days there are so many good camp lanterns and lamps that it is quite impossible to assist the sportsman in making a choice. But where oil can be obtained nothing, I think, has yet eclipsed Orr's patent camp lantern (P. Orr & Sons, Madras). Under other circumstances a good candle lamp, of which there are many, is the most satisfactory.

*Cooking utensils*.—The desire to cater specially for the sportsman, has placed within our reach many "complete camp kits," in which most requisites are neatly stowed away, and the special features of which are lightness and convenience. Warren's cooking pots have stood the test of time and are considered unrivalled for convenience, portability, cleanliness and economy of fuel. But the general introduction of aluminium has revolutionised our cooking pots, and it is now possible to carry in less space four times the number of kitchen utensils and table requisites without increasing the weight by an ounce. For example, let us take six aluminium Bombay shaped (straight pattern),

deckchies, the largest 14 inches in diameter. Putting aside the largest and its cover, we "nest" the five others. Into the smallest we pack our pepper and salt castors, butterpot, tea spoons, cups and saucers, and placing the lids on the deckchies after the manner of the Chinese puzzle boxes, we strap up the outer deckchie. Now we pack into the large deckchie a fry-pan with a hinged or removeable handle, inside this our plates, then the teapot, tumblers, milk jug, sugar basin, small pie dish, egg cups, knives, forks and spoons, all of aluminium, and topping up with the gridiron, we put on the cover and strap up as before. In this small space we have packed away every kitchen and table requisite and the whole weighs but a few pounds, the articles are extremely durable and uncommonly cheap. I have omitted the kettle with its awkward handle, spout, and lid. It is quite unnecessary, for water for tea and all other purposes can be boiled quite as well in a deckchie. For want of a better, an ordinary kerosine tin will, with the aid of a pair of shears, make a first-rate camp oven. A tiffin basket is absolutely necessary.

*Crockery and Cutlery.*—The usual plates, dishes, cups, mugs, knives, forks, spoons, etc., the two latter of aluminium. The tumblers should be of the same ware and arranged to "nest" into each other: in fact all the "crockery" may be of aluminium with advantage and in this metal one can now get almost every article of table-ware.

*Kitchen etceteras.*—A good meat chopper, a large and strong knife, a fork, two large aluminium spoons, a small pestle and mortar, a few enamelled or aluminium plates and bowls of assorted sizes are necessaries, also a dozen dusters. A good camp cook can manage with these, supplemented by the many clever makeshifts, known to camp servants. Any other items are optional.

*Water Vessels.*—A few old kerosine tins fitted with iron handles make excellent buckets and, when on the march, will hold a lot of small gear. The old-fashioned leather *chagul* or water-bottle is useful in camp and especially when marching or shooting ; but the Australian water-bag is lighter and keeps the water cooler. It is made of stout English or American canvas ( No. 4 for choice ), is closely stitched into a square bag, in the top of which the nozzle of a bottle is tightly sewn. Two canvas loops with a wooden crosspiece from the handle and a good fitting cork for the nozzle completes the arrangement. Before using it should be soaked for a few hours.

The water-bottle for personal use should be felt-covered, and may be of vulcanite, aluminium, glass or enamelled ware. Vulcanite and glass are good, but liable to crack ; aluminium is the lightest, and strongest, but don't put cold tea into it, especially Russian tea with a dash of limejuice, unless you want to drink ink, the tannin acting on the acid, in a few hours converts this most

excellent beverage into a filthy and unpotable compound. Enamelled bottles, until the enamel cracks and the iron is exposed (when tea turns to ink as in aluminium), are good, but they do not keep liquids cool ; damping the felt of the bottles insures a cool drink ; on the whole, for camp use I recommend a glass bottle.

*Filter.*—At the time of writing there is no filter to equal the Berkfield camp filter, worked on a pneumatic pump principle and fitting into a small wooden case.

*Tent pegs* may be carried, though in the jungles they can generally be cut near at hand, but for places like Tibet, where wood is extremely scarce, it is as well to take light iron ones with an eye at the end *secured by a chain and padlock*.

*Tools.*—An adze will replace the tent peg mallet and be found a very useful instrument about camp, for it will drive in tent pegs, clear the ground, dig a trench, split firewood, cut timber in the rough, and perform various useful jobs. A luxury in the shape of a most ingenious and complete folding leather tool case is supplied by Messrs. Pigott Bros. & Co., London. It takes up but little room and contains every tool likely to be needed in camp, from a handy axe to a gimlet, and includes screws, nails, and tacks. If this is not available, don't forget

an adze, axe, hammer, large and small screw-drivers, small saw, a few assorted files, a shoemaker's haft containing needles, thread, awls and wax, pliers, bradawls, a leather punch, large scissors, small vice. A few screws, nails and tacks; and ice brads for boots. A "Bonser" pocket tool case is a good thing to have. A large water-proof sheet is always useful.

*Stores.*—Here again the personal equation must be taken into consideration, but I might suggest compressed vegetables, jam, cheese, oatmeal, Liebig or Bovril, army rations, Lazenby's soup squares, Maggi, Erbswurst, and Kopfs' soups, onions, potatoes, cooking stuff, biscuits, tea, coffee, cocoa, sugar, "sparklets" maccaroni, cornflour, dried fruits, Borwick's baking powder, condensed milk, sauce and condiments, salt, butter, bacon, lard in tins, mustard oil in tins, rice, dall, curry powder; also such tinned provisions as individual tastes suggest. Candles, bar-soap for washing dusters, &c. For certain places nearly all these things must be carried, together with kerosine or some vegetable illuminant oil, or candles; for others, the list may be judiciously pruned as local supplies may justify. Liquor is a subject on which I will presume to offer no advice, merely contenting myself with a few hints. Brandy is a medical comfort, and a tot of some sort of spirit after the day's work is advisable. If a flask is carried, I recommend Britannia metal mounts; how acquisitive all natives are, to be sure! For servants, provisions must be carried, and

these must be carefully arranged for in consultation with them for much of the success of a shikar trip depends on keeping our *nowkers* comfortable and in good humour.

*Medicines.*—The tabloid and compressed drug system now so popular enables us to take into camp a complete medical equipment packed into a little case which need not exceed  $5 \times 5 \times 2$  inches. There are soloids for preparing lotions and tabloids for internal medication, and Messrs. Burroughs, Welcome and Co. turn out pocket or saddle cases which contain assortments of drugs sufficient to cope with all emergencies. These are to be recommended, but it will be necessary to supplement them with a few simple instruments and surgical appliances. Appended is a list of useful medicines which may be solely relied on or from which a selection can be made to supplement the pocket case above referred to :—Cockle's Pills, Chlorodyne, Camphor Liniment, Vaseline, Eno's Fruit Salt, Holloway's Ointment, Perry Davis's Painkiller, Rose Water (for the eyes), Essence of Ginger, Kutnow's Powder, Castor Oil or Jalap (for servants), Homocea (for blisters and chafes), Powdered Boracic Acid, Eucalyptus Oil, Friar's Balsam, Carbolic Oil, Phenacetin, a Stick of Nitrate of Silver (for bites), Rigolett's Mustard leaves (for plasters), Tincture of Opium (a drop or two in the eye affords instant relief from snow blindness), Lincel Liniment (for sprains, rheumatism, &c.) Little's Oriental Balm (for head-

aches, &c.), "Omum Kapoor" (for colic), "Jwara Hari" (for fever), Croton Oil (for sunstroke), Powell's Balsam of Aniseed (for coughs), Bunter's Nervine (for tooth-ache). Quinine (in pills or powder), good brandy, a measure glass, scales and weights, antiseptic lint, bandages, carbolised wool, sticking plaster, a thermometer, a pair of scissors, a lancet, a pair of tweezers, a caustic pencil and a packet of safety pins, needles and wire for stitching wounds, Higginson's syringe, Esmarch's elastic ring and twister, pair of forceps, hypodermic syringe and latest remedies for snake bite.

*Useful Articles.*—Binoculars or telescope, a pocket compass, glare goggles, whistle, pocket shikar knife and hunting knife, notebook, diary, stationery, maps, string, wire, a "house-wife" containing, needles, cotton, pins, etc., tin-opener, cork-screw, burning glass, toilet-paper, twine, matches, in bottle or air-tight tins, Neat's-foot oil for boots, "Orite," and Rangoon oil for guns, together with a good supply of jute waste or coir and gun rags, which will be found useful as packing for crockery and bottles, a spring weighing machine, and measuring tape. A camera is useful.

*Coolies' Loads.*—Twelve loads, about 50 lbs. each, should be ample for a two months' camp in the Himalayas, including everything. All the loads should be *one man's loads*, as things cannot be carried safely over bad ground when slung on poles between two or more men.

*Camp Taxidermy.*—For the rough work carried out in camp, few implements are required ; a skinning knife, skin scraper, scissors, and a pair of forceps or pliers, a small saw and a hone are practically all that is needed. There are many good preservatives now sold in powder or liquid state and they may be safely used, though perhaps the old-fashioned lime, salt, alum and wood ash methods will be found the most satisfactory, and with these all native skinners are familiar. A *Kurpi*, such as all moochies use, is invaluable for scraping skins, and we may add a few butcher's knives for skinning.

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## GUNS, RIFLES, AND AMMUNITION.

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The best gun for all-round use is a 12 bore cylinder, weight, with 30 inch barrels  $6\frac{3}{4}$  lbs., with 29 inch barrels 6 lbs. 10 oz., and with 28 inch barrels  $6\frac{1}{2}$  lbs. Thirty inch barrels are the best length for a 12 bore. A well bored cylinder gun should make with No. 6 shot,  $1\frac{1}{8}$  oz., an even pattern of about 130 on a 30 inch circle at forty yards range, and should shoot a spherical ball into a six inch ball at sixty yards, loaded with three drams of No. 6 B. P. with  $1\frac{3}{8}$  oz. of No. 5 shot the above should make a pattern of about 115, and with  $1\frac{1}{4}$  oz. of No. 4 a pattern of about 100. For general use No. 6 is the best size shot to use, but for wild fowl, monaul and snow cock, No. 5 or No. 4 can be used to advantage. For quail and snipe, one ounce of No. 8 is the best charge.

A heavier 12 bore, about  $7\frac{1}{4}$  lbs. to  $7\frac{1}{2}$  lbs. in weight, with 30 inch barrels, taking  $1\frac{1}{4}$  to  $1\frac{1}{2}$  ounce of shot, choke bore, is useful for wild fowl shooting only and recommended by Sir Ralph Payne Gallwey in preference to a larger bore

for shore shooting. The range of accuracy of a smooth bore gun firing spherical ball is about sixty yards. Sportsmen requiring a weapon with a longer range have the choice of rifled ball guns such as the Paradox and Colindian. They are, however, heavier than ordinary game guns.

A 16 bore gun with 29 inch barrels should weigh about  $6\frac{1}{4}$  lbs. and make a pattern of 115 to 120 with an ounce of No. 6 shot.

A 20 bore gun with 28 inch barrels should weigh about  $5\frac{1}{2}$  lbs and make a pattern of 90 to 100 with  $\frac{7}{8}$  oz. No. 6 shot.

There is little use in having one barrel cylinder and the other choke as the bird fired at with the left barrel is frequently nearer than that fired at with the right. Very few men can use a chokebore as effectively as a cylinder on game. If, however, the sportsman requires a choke bore that will shoot ball accurately as well as make a close pattern with shot, a *recess choke* is recommended. The accuracy with ball is equal to a cylinder.

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## RIFLES.

The modern nitro rifles are far preferable to the old black powder weapons. They are more accurate, have a much lower trajectory, and bore for bore have nearly twice the power.

For Himalayan shooting, the .360 cordite, single barrel weighing 7 lbs. or double 8½ lbs. with 26 inch barrels, is a better weapon than the .450 black powder express.

For all-round shooting the .400 cordite rifle taking the "Jeffery" 3 inch .450—.400 cartridge, loaded with 55 grs. of cordite and 400 grs. bullet is second to none. A single weighs from 8 lbs. to 8½ lbs., a double 10 lbs. to 10½ lbs. with 26 inch barrels.

There are also the .375 bore, and the new .360 No. 2, the latter having a very high velocity with a charge of 55 grs. of cordite and a 320 grs. bullet.

The .450 No. 2 cordite, about 9½ to 10½ lbs. single and 12 lbs. to 12½ lbs. double, seems to be powerful enough for anything. A well known sportsman dropped a charging elephant with one in Africa.

It is doubtful whether a more powerful weapon than the .450 cordite is required for any kind of game, but to those who wish for heavier weapons there are the .577 and .600 bore cordites taking 750 grs. and 900 grs. bullets, propelled by 100 grains of cordite.

For soft-skinned game, the .360, .375 and .400 bore rifles should be used with bullets having half an inch of soft lead exposed above the nickel to insure expansion. The "Jeffery No. 1" bullet is a good all-round bullet for the .400 bore cordite. A double rifle is at all times preferable to a single, *if of best quality*

and *made* by one of our *best gunmakers*. The eye catches the two sights in line quicker between the barrels of a double than along the narrow incline of a single.

Small bores such as .256, .275 and .303 are not recommended, owing to the uncertain effects produced on game. It is true that much game is killed by these weapons, but they often fail, and from the small hole made by the bullet animals are frequently lost owing to their being little or no blood trail. The .360 is the smallest bore recommended.

Lately, however, a new rifle has been produced, a .375—.303, with the very high velocity of over 2,500 ft. seconds, loaded with "Axite", which I think is the coming propellant for both military and sporting rifles. The .375—.303 appears to be more suitable for military than sporting purposes. Magazine rifles are not recommended for shikar. A single, with the "Farquarson" action can be loaded very quickly, but double rifles are the best for sporting purposes. The weight is only about a pound and a half, or two pounds more than a single. Cheap weapons are not recommended.

Best quality second hand guns and black powder express rifles are to be bought, many of them in equal to new condition at from (guns) Rs. 150 to Rs. 300 that originally cost £40 to 60, and (rifles) from Rs. 200 to Rs. 400 that cost £45 to £70. The above have outside hammer actions.

Hammerless weapons of course are more expensive, weapons of best finish are far preferable to cheap weapons. By finish I do not mean engraving,

though a best weapon is usually neatly engraved—but *finish* consists in the accurate fitting and smooth working of all the parts, nice balance, best locks and handsome stock of well seasoned wood.

In black powder rifles, solid bullets, cast of *pure lead*, are preferable to hollow ones, for soft skinned game. The lead mushrooms on impact and penetrates; but hollow, copper tubed bullets of the short kind (450—270 grn.). (·500—340 grn.) and (·577—520 grn.) are unreliable in their action, frequently breaking up into small pieces on a big bone and failing to penetrate.

A B. P. ·450 loaded with 4 drams and a 380 grain solid bullet, or a ·500 with 5 drams and a 490 grn. solid bullet are reliable weapons. Sir Samuel Baker's ·577 with 6 drs. and a 650 grn. bullet could not be beaten for tiger shooting. It appears, however, that the ·360 cordite is fully equal in stopping power to the old ·450 B. P. The ·400 C. to the ·500 B. P. and the ·450 to the ·577 B. P., provided suitable bullets are used.

*Spherical bullets for guns.*—Whether the bullet fits the barrel tightly with or without a patch appears to matter little, but unless there is little or no escape of gas past the bullet the accuracy is impaired. The patch should be of stout linen, well lubricated, and the bullet firmly fixed in the case with a "Kynoch" crimper. Brass cases are the best for ball, as the bullet can be kept firmer in its place than in paper cases.

*Downhill Shots.*—Shooting downhill is the hardest shooting of all and allowance has to be made in sighting. Thus an animal 200 yards off vertically and only 100 yards horizontally, the 100 yards sight, taken very fine, should suffice. Practice is required, and a long target placed 'down the khud' will tell an inexperienced shooter a lot. With the nitro high velocity rifles, not so much allowance has to be made as with black powder weapons.

*Sights for rifles.*—A wide and shallow notch in the backsight is perhaps the best for all-round shooting for those who object to Lyman sights. The foresight should be of ivory, bead pattern, and not too fine. The American "Caterpillar" foresights are the best I know, they are strongly made and tipped with ivory.

It is important that the backsight on a rifle should be the right focus and not too close to the eye. From 22 to  $24\frac{1}{2}$  inches from the heel of stock in a single, or 6 to  $8\frac{1}{2}$  inches from the breech in a double, according to the age and eyesight of the shooter. Focus is as important in rifle shooting as it is in looking through a telescope. Black powder rifles are best sighted for standard 80, and leaves for 150 and 200 yards. Cordite rifles for standard 100, and leaves for 200 and 300 yards.

New rifles should be tested carefully at a target before using on game, and a few shots tried at near objects, at a bull the size of a rupee at from ten

to twenty yards. A sportsman has frequently to take shots at dangerous game at close quarters, fine shooting is required and he should know exactly where to aim and how fine a sight to take.

*Judging distances.*—Young sportsmen usually over-estimate the distance, and a miss is the result. Practice alone will teach one.

*A useful battery.*—A 12 bore gun and a .400 cordite rifle form a useful battery for all-round shooting. But for bison, buffalo and rhino, a large bore black powder rifle, or a powerful cordite should also be taken. The gun or rifle that is the sportsman's constant companion is usually the most effective, and the man with many weapons is often not so successful as the all-round rifle-wallah. Great care should be taken in cleaning all weapons, and cordite rifles especially require extra care. "Orite" and Vaseline are necessary to keep nitro weapons in good order.

There are several kinds of bullets of different weights used in black powder express rifles. The ordinary "Eley" bullets in a .450 express being 270 grain hollow and 310 grain solid. Henry's rifles were usually accompanied by a mould which cast bullets weighing (.450) 300 grn. hollow, 320 grn. hollow point, and 340 grn. solid. The latter, of soft lead, with 113 grs. of No. 6 powder just a third the weight of the bullet gave extraordinarily accurate results in a .450 "Alexander Henry" rifle. As good result were obtained with the above

cartridge loaded with 110 grs. (4 drams) and a 360 grain solid bullet in a "Purdey" .450. "Eley's 3½ inch taper cartridge.

Rigby and Holland's .450 rifles were usually sighted for 110 grns. of powder and bullets 325 grn. hollow, 360 grn. hollow point, and 380 grn. solid soft lead, as cast from moulds supplied with the rifles.

Gibb's .461 bore rifles, as used by the famous African shikari, Mr. Selous, took a charge of 90 grains (about 3½ drs.) of powder and 360 grn. bullets with a ¼ inch narrow hollow at the point.

The best .500s are those that take 5 drams and the heavy bullets, 440 grn. hollow, 460 grn. hollow point and 490 grn. solid soft lead. Rifle 9½ to 10 lbs. weight. The best .577 is undoubtedly the "Sam Baker" pattern. Weight 11½ to 12 lbs. Charge 6 drs. and 650 grain solid bullet of soft lead.

Messrs. Westley Richards & Co.'s Rifles are famous throughout the world, and their new high velocity nitro-express rifles are thoroughly reliable weapons of the highest class. Here mention may be made of their highly useful "Explora." The ground upon which it claims special reference are based on the fact that it effected the following improvements :—1.—Increased the range of the ball and shot gun from one hundred to three hundred yards, that it is a matter of history. 2.—It increased the velocity, and flattened the trajectory. 3.—It introduced two new bullets, the brass capped for the purpose of penetration,

and the all lead bullet for complete and instant expansion. The fact that it increased the ranging power of the bullet to three hundred yards is a proof that the "Explora" raised the standard of accuracy of the ball and shot gun at all ranges, and this fact has been testified to on many sides. The .28 bore "Fauneta" is another variation of their system. It was asserted that the .28 bore was too small as regards shot for Indian sport. I am not sure that this is the case, but to meet the objection Messrs. Westley Richards & Co. have now arranged a .20 bore "Fauneta" ball and shot gun, which is a great advance and provides a very useful weapon for the Indian sportsman. This .20 bore shoots a bullet of 425 grains with a very favourable velocity of 1500 feet per second with an energy of 1121 foot lbs., and shoots shot patterns of a very high standard and even distribution. The bullets are the brass capped and a nickel base lead bullet on a similar principle to the capped. The weight of this gun for India is between  $6\frac{1}{2}$  and 7 lbs.

As a weapon for India both for Club shooting and small game of the deer tribe the "Sherwood" single rifle is very effective and is fitted with the most approved form of windgauge sights. It has proved itself an excellent target rifle and has done highly creditable work at deer. The .318 bore accelerated express because it is a small bore and admittedly stands at the head of the small bore rifles, possessing as it does the exceptional velocity of 2500 F. S. combined with a good bullet weight, *viz* :--250 grains:—by which a muzzle

energy of 3466 ft. lbs. is obtained, and this energy is not wasted as it is in most high velocity rifles shooting a light bullet, because the capped pointed bullet employes this energy in shock, damaging and destructive qualities as opposed to the penetrative qualities, and, consequently, waste of energy distinctive of the other small more high velocity rifles. Then there is the .476 magnum which shoots the heaviest charge of any rifle between the .450 bore and the .500 bore, *viz* :—.476 bore, 520 grains bullet, 75 grains of powder and in conjunction with this the pointed capped bullet known as the L. T. nickel bullet mark I that is for the combined purposes of high penetration and expansion, and also a bullet having a nickel base and a lead front, hollow within, on the principle inaugurated by the capped bullet by which complete and instant expansion is set up for use at soft skinned animals. Other makers whose names are familiar to all who handle rifles are Messrs. Holland and Holland ; Messrs. John Rigby & Co ; Messrs. E. M. Riley & Co. ; Messrs. Cogswell & Harrison, whose "Certus" Rifle has now achieved a reputation in India ; Messrs. Joseph Lang & Chas. Lancaster. All these firms have specialities in double and single barrelled and express rifles from .303 to .577 and most of them are built for cordite. Our good old friends the Paradox and Cosmos ball and shotguns are still to the fore. The modern smokeless express rifles have, to some extent, ousted them from the popularity they once enjoyed, though the new " Paradox " for cordite is very highly spoken of.

## TABLE OF SHOT GUN OR SMOOTH-BORE GAUGES.

In days of old, before arms were rifled, missiles were round and shot from a barrel that was smooth-bore like a shotgun ; the gauge or calibre was numbered according to the quantity of a perfect sphere of lead there was contained in a pound. Thus, 50-gauge rifle was bored for a ball that took fifty of them to weigh a pound, 20-ga. twenty to the pound, 16, 14, 12, 10, etc. The adjoining table reduces the standard shotgun or smooth-bore gauge decimallly to thousandths of an inch, also to millimetres.

Diameter in decimals of the inch.	Gauge or bore.	Diameter millimetres.
.835	8	21.8
.775	10	20.0
.726	12	18.6
.693	14	17.8
.662	16	16.8
.615	20	15.6
.571	25	14.4
.537	30	13.6
.526	32	13.2
.488	40	12.4
.453	50	11.4

In comparison to calibre of rifled arms, it will be observed there is a marked difference; in this table, as the size of the gauge increases, the numerals designating the diameter of it decrease. Thus, the size of the hole in the barrel of a 25-gauge smooth-bore is .571, while for 50-gauge smooth-bore, it is only .453. For a rifle barrel of exactly .25 Cal., the bore should be .250; for a .50 Cal., it would be  $\frac{1}{2}$  inch or 500. The calibre or gauge of the modern rifled arm, if correct, is designated decimal by hundredths. Thus .32 Cal. should be 32—100, .40 Cal., 40—100, etc., though few of them are really what they are called. We would remark here that the round ball for shotgun, as cast in English moulds, is about fifteen thousandths (.015) smaller in diameter than figures designated in the table, allowing for the thickness of the patch.

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## HOW TO FIND OUT THE TWIST OF RIFLING.

Lubricate the inside of the barrel well. Take a bullet that is large enough to fit snugly so as to get a full impression of the rifling. Force it through the barrel carefully. Get a piece of straight wire smaller than the bore of the rifle; drill a hole in the bullet and fasten one end of the wire to it; shove the bullet with the wire fastened to it from the muzzle to the commencement of the rifling at the chamber. Fasten the barrel in a vice or otherwise: make a chalk mark

on the breech and muzzle of the barrel, also one on the wire in alignment with those on the barrel. Make a mark on the wire even with the muzzle, and force the bullet toward the muzzle, and when the chalk mark on the wire has turned completely around, and is again in a line with those on the barrel, measure the number of inches the mark on the wire has travelled from the muzzle of the barrel, and you will find what you are looking for.

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#### HINTS ON SHOTGUN AND EXPRESS CARTRIDGES.

Without entering into the particulars of the variation of range and power of different sizes of shot, it may be useful to bear in mind—weights of powder, lead, and other conditions remaining the same—that with each increase in the size of the shot, there is an increase in the force per pellet, there is of necessity a diminution of the number of pellets on the object aimed at, but unfortunately also the pellets are correspondingly scattered and the pattern wide, irregular, and deteriorated.

The remaining force of No. 4 shot at 60 and 80 yards is about equal to No. 6 at 40 and 60, respectively, but as the pattern of the larger shot is deteriorated  $2\frac{3}{4}$  drs., instead of 3 drs., may be used advantageously with No. 4 and larger shot. The pattern would be better and the remaining force in the larger shot would have sufficient killing power at 60 yards.

When loading with a very large shot, fill up the interstices with sawdust.

Balling and clustering of the shot arises from many causes. From the hot powder gases getting past the wads fusing several pellets together, from a too quickly igniting powder, from the coning of the barrels being too sharp, from the size of the shot and quantity, from the turnover of the cartridge, from the impact of the shot against hard wads, etc., all of which require a special cure.

Leading chiefly occurs towards the breech end of the barrel, where it is often undetected. It is prevalent in choke bores. If the deposit is not very great, tow or cotton wound into a knob, round the jag of the cleaning rod, and saturated with spirits of turpentine, will remove it; but if it is leaded considerably, do not use the steel wire brush, but a brass one such as recommended by Sir R. Payne Gallwey.

In case of miss fires, the fault is almost certain to lie in the gun, one of the many causes arises from the faulty shape of the striker. The length of the part projecting from the gun should be one-tenth of an inch, and the end blunt. If the end be too pointed, miss or hang fires will frequently occur; but the fault is not always with the gun; I have known two miss fires occur in rifles—One in a .400—.360 double hammer cordite rifle. The fault was in the cartridge, as the cap was not only fully dented, but driven well into the case.

Another occurred with a .450 black powder rifle, and the cap was dented and driven in similar to the .360. Both above happened in best quality rifles by two of the very best makers. The rifles were not to blame. For shooting in the Himalayas, either in hot valleys at from 4,000 to 6,000 ft. in September, or on the upper ranges 10,000 to 14,000 ft. in November and December, I have found no powder to equal "Ballistite" for regularity and killing power. I have also tried it under a blazing sun in the plains, and found it just as satisfactory. This also applies to cordite cartridges in rifles, but for safety no nitro powder cartridges should be allowed to remain long in heated barrels. When having lunch or resting during the day, one's cartridge bag should always be put in a shady place, and gun or rifle as well.

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#### HINTS ON CASTING LEAD BULLETS & LOADING EXPRESS CARTRIDGES.

For thick-skinned animals the lead or alloy should contain one-twelfth of tin, should be melted in a large ladle, and a small one used for pouring. A little resin or tallow thrown on the fluid will facilitate the skimming. The fluid must be kept well stirred, or the harder metal of less specific gravity will float to the top. The mould should be perfectly dry, well-warmed, and smoked

inside ; the core peg then inserted and the metal poured in sufficiently hot to run freely, but not red-hot, in a steady and uniform stream, not by any means intermittent. Then remove the core peg, cut off the "get," and the bullet will drop out. For soft-skinned game, no tin should be used, but the bullets cast of pure lead. What is known as *tea lead* is the best, and the bullets should be solid, or with not less than  $\frac{1}{4}$  inch hollow at the point, and the hollow should be very narrow. For buck shooting in the plains, it is best perhaps to have bullets with a small hollow, as they sometimes go through, though making a large hole at exit. But for large soft-skinned animals and for all-round shooting in the Himalayas and other hill ranges, the best bullets are those cast of pure lead and quite solid. The idea that pure lead bullets foul the barrel is all nonsense. If thousands of shots were fired without cleaning, any barrel with either pure lead or hardened bullets would become foul ; but a sporting rifle rarely fires a dozen shots in a day and of course would be thoroughly cleaned after using.

Turpentine removes ordinary leading, but when 100 shots have been fired it is perhaps best to cork up the breech end of barrels and shake a little mercury up and down inside, keeping your thumb over the muzzle end. The barrel can then be cleaned in the ordinary way. The mercury can be poured back into a bottle. Some gun-makers appear to object to supply pure lead bullets. It is best to procure a mould and cast them yourself.

The moulds are made .005 of an inch larger than sizes required. By means of the "Corrector" the bullets are reduced to the proper size and shape, and improved in density. During this process drive in the hollow tube, cut off the fringe, and they are then ready for their paper jacket. For accurate shooting, this process of correcting is necessary.

After pouring in the powder the case should be tapped a dozen times or so, that the grains may settle in close contact, or perhaps there may not be room for the charge recommended.

The wads should then be inserted and *pushed down*, not rammed so as to crush the powder, then the bullet inserted, leaving the paper jacket about a sixteenth of an inch out of the shell. If the bullet does not fit well, tap it gently down with the "Fixer." Before using re-sized cases, they should be slightly opened at the mouth with the "Opener."

Equal parts by weight of Chlorate of Potash and Sulphuret of Antimony constitute the explosive compound for such bullets used as explosive shells.

As soon as possible, shells that have been used should be well boiled, dried and thoroughly cleaned, in order to remove effectually the residue, or sulphurous acid generated by the combustion of powder, which would corrode them in a short space of time.

“Re-sizing.”—The cases should be slightly oiled, placed in the cylinder, the plug driven down with the mallet as far as the shoulder ; the concave end of the plug is for knocking the case out of the cylinder, and it is then ready for re-capping.

The barrels must be thoroughly cleansed of oil before shooting, otherwise the first few shots will be defective.

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#### PRESSURES AND VELOCITIES.

The following table shows the result of trials by *The Field* of the pressure and velocity of express black powder cartridges and cordite cartridges.

*The Field* says :—“ Our trials have conclusively proved that for any given velocity and weight of bullets, cordite gives LOWER CHAMBER PRESSURES THAN BLACK POWDER.

“ Subjecting the cartridges to moderately-increased temperature does not appear to lead in the direction of danger, although, of course, no one would allow his cartridges to be exposed to the sun’s rays in hot climates. Pushing the bullet into the case, and thus reducing the air-space, generally results in considerably increased pressure. Had the cases been recrimped after pushing in the bullets, the pressures would have been still greater. We emphasize this fact as a warning to those sportsmen who load their own cartridges.

Bore.	Length of Case.	Powder in Grains.	Weight of Bullet Grains.	Pressure in tons per sq. in.	Muzzle velocity in ft. secs.	Pressures after expo- sure to 120° Fahr. for twelve hours.	Pressure after the bullet had been pushed in $\frac{1}{8}$ in.
.577	3	164 Blk.	570 Lead.	10.37	1723	.....	.....
"	2 $\frac{3}{4}$	80 Cordite	520 L.	7.73	1755	6.21	8.31
"	2 $\frac{3}{4}$	76 C.	560 Nickel.	6.99	1667	5.85	7.89
.500	3 $\frac{1}{4}$	135 B.	440 L.	10.51	1748	.....	.....
"	3	67 C.	340 L.	8.30	1965	8.26	9.08
"	3	61 C.	480 N.	8.43	1759	8.83	9.47
.450	3 $\frac{1}{4}$	110 B.	325 L.	10.02	1763	.....	.....
"	3 $\frac{1}{4}$	59 C.	270 L.	8.64	2043	8.37	9.34
"	3 $\frac{1}{4}$	56 C.	365 N.	9.61	1882	9.32	9.91
.400	2 $\frac{3}{8}$	82 B.	275 L.	10.81	1671	.....	.....
"	2 $\frac{3}{8}$	38 C.	230 L.	4.73	1616	5.75	5.13
"	2 $\frac{3}{8}$	42 C.	400 N.	11.44	1682	13.18	14.96
.400	3 $\frac{1}{4}$	96 B.	270 L.	10.14	1649	...	.....
"	3 $\frac{1}{3}$	49 C.	370 L.	8.83	1644	9.73	9.69
"	3 $\frac{1}{4}$	53 C.	400 N.	14.50	1952	16.12	15.41

I have used Cordite and Rifleite in a .450 black powder rifle, and found them pleasant to fire and to give greater accuracy than black, *but*, the rifling of black powder rifles is *not suited* to nitros, and in every instance, I have seen the barrels have become pitted and spoilt, though the greatest care was taken in cleaning. I believe that black powder is the best for black-powder rifles. The grooves are deeper than in cordite rifles.

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### THINGS WORTH REMEMBERING.

*Avoirdupois Weight.*—16 drachms make 1 oz. ; 16 oz. make 1 lb.

*Troy Weight.*—24 grains make 1 dwt. ; 20 dwt. make 1 oz. ; 12 oz. make 1 lb.

*Apothecaries' Weight.*—20 grains make 1 scruple ; 3 scruples make 1 drachm ; 8 drachms make 1 oz. ; 12 oz. make 1 lb.

*The Grain Weight* is the same in all tables. Powder is bought by Avoirdupois weight, but in weighing it for rifles, the Apothecaries' scale weight is used. Though only in respect of *grains*, not in drachms. As an Apothecary drachm is 60 grains ! But the correct drachm weight for weighing powder charges is  $27\frac{1}{2}$  grains.

There are 7,000 grains in 1 lb. Avoirdupois.

## TABLE REDUCING DRACHMS TO GRAINS.

In all but the first line the fractional part of a grain is omitted.

**1 Drachm Av'pois (SHOTGUN MEASUREMENT) is equal to  $27\frac{1}{2}$  grains (Rifle Meas.)**

$\frac{1}{4}$	"	"	"	"	"	34	"	"
$\frac{1}{2}$	"	"	"	"	"	41	"	"
$\frac{3}{4}$	"	"	"	"	"	48	"	"
2	"	"	"	"	"	55	"	"
$2\frac{1}{4}$	"	"	"	"	"	61	"	"
$2\frac{1}{2}$	"	"	"	"	"	68	"	"
$2\frac{3}{4}$	"	"	"	"	"	75	"	"
3	"	"	"	"	"	82	"	"
$3\frac{1}{4}$	"	"	"	"	"	89	"	"
$3\frac{1}{2}$	"	"	"	"	"	96	"	"
$3\frac{3}{4}$	"	"	"	"	"	102	"	"
4	"	"	"	"	"	109	"	"
$4\frac{1}{4}$	"	"	"	"	"	116	"	"
$4\frac{1}{2}$	"	"	"	"	"	123	"	"
$4\frac{3}{4}$	"	"	"	"	"	130	"	"
5	"	"	"	"	"	137	"	"

One pound of powder will load seventy-seven ... ... 90 grains Cartridges.

"	"	"	"	seventy-three	...	...	95	"	"
"	"	"	"	seventy	...	...	100	"	"
"	"	"	"	sixty-six	...	...	105	"	"

It takes 1 lb. 3 oz. powder to load one hundred cartridges with 3 drachms.

"	1 lb.	6 oz.	"	"	"	"	3½	"
"	1 lb.	9 oz.	"	"	"	"	4	"
"	1 lb.	12 oz.	"	"	"	"	4½	"
"	1 lb.	15 oz.	"	"	"	"	5	"
"	2 lb.	3 oz.	"	"	"	"	5½	"
"	2 lb.	6 oz.	"	"	"	"	6	"
"	6 lb.	4 oz. shot	"	"	"	"	1	OZ.
"	7 lb.	½ oz.	"	"	"	"	1½	"
"	7 lb.	13 oz.	"	"	"	"	1¼	"
"	9 lb.	6 oz.	"	"	"	"	1½	"

#### SHOT—SIZES AND WEIGHT.

A A A	...	...	40	Pellets per oz.	4	...	...	172	Pellets per oz.
A A	...	...	48	"	5	...	...	220	"
A	...	...	56	"	5½	...	...	240	"
B B B B	...	...	56	"	6	...	...	270	"
B B B	...	...	64	"	6½	...	...	300	"
B B	...	...	76	"	7	...	...	340	"
B	...	...	88	"	8	...	...	450	"
1	...	...	104	"	9	...	...	580	"
2	...	...	122	"	10	...	..	850	"
3	...	...	140	"					

## PRESSURE VELOCITY AND ENERGY OF BLACK POWDER EXPRESS CARTRIDGES.

Cartridge.	Grains of Powder.	Bullet Grains.	Pressure in tons per sq. inch.	Muzzle velocity, ft. per sec.	Muzzle energy in ft. pounds.	Striking velocity at 100 yds. feet. per second	Striking energy at 100 yds. in foot pounds.
.577 Bore.	167	560	10	1,740	3,784	1,517	2,877
.500 "	136	340	10	1,880	2,683	1,575	1,885
.450 "	120	270	11	1,950	2,292	1,633	1,607
.450 "	120	365	12	1,750	2,495	1,530	1,907
.500/450 "	140	365	10	1,850	2,788	1,620	2,138
.400/400 "	110	270	11	1,800	1,953	1,560	1,468

## MISCELLANEOUS INFORMATION.

*Directions for self-measurement.*—Take a piece of wood with a perfectly straight edge that is long enough to reach from the muzzle to the extremity of the butt, lay this straight edge along the upper rib of the gun. Then measure the distance between the heel of the butt and the bottom of the straight edge, and from the point of the comb also to the bottom of the straight edge. These measurements give the bend. For length the measurements will be from the

centre of the right trigger to (1) the heel, (2) to the centre of the heel plate, (3) to the toe; and for depth from heel to toe. All measurements should be taken to the  $\frac{1}{16}$ th of an inch.

*To test the pull.*—Tie a piece of string to each trigger, and attaching them in turn to an accurate spring balance, place the gun trigger guard down on a table, and pull upwards and towards the body.

*To test the balance.*—Loop a piece of string round the fore-end about 3 inches in front of the breech, and hold the gun suspended. If the barrels are horizontal, the balance is correct. A muzzle heavy gun should be condemned.

*Selecting a gun.*—In selecting a second-hand gun, it is not sufficient to merely look through the barrels, mount it to the shoulder, and aim at some imaginary object, open and close the breech with a snap and read the makers' name. The proof mark should be examined, the breech and false breech looked at to see if there is plenty of metal between the extractor pin and the inside of the chamber, and the locks should be opened out and examined.

*To clean guns.*—Boiling water is excellent to clean weapons with. If the barrels are wet with rain, the heat caused by pouring boiling water through them quickly dries them. To clean a gun this way, pour boiling water slowly

through from breech to muzzle, turning the barrels round as you do so. Then wipe out with flannel rags. To clean a rifle: first wipe out with a pull-through and "Orite," or "Nitroclene," then cork up the muzzle, pour boiling water till barrel is full, let water remain a few seconds, then remove the cork (your bearer can do this !) and pour more water. Finally wipe out well and finish with vaseline.

Before using, all vaseline should be thoroughly wiped from inside and the barrel should be absolutely dry. It is worth while to always pay personal attention to the cleaning of one's weapons, especially nitro rifles. To clean a weapon, does not take more than ten minutes at the most. The outside of the barrels should be well cleaned and greased with vaseline. All dirt and particles of powder having been removed from the face, lever, hammers, etc., the metal parts of the stock should be treated with vaseline. The pin of the extractor, the firing pins, the spring in the fore-end, need a drop or two of Rangoon oil applied with a small paint brush.

A brass scratch brush is better than one of steel, and the best is the Payne Gallwey brush already alluded to. A little finely-powdered emery sometimes helps the work of the scratch brush.

A breech brush is useful, especially if one has been using "Parvo" cartridges in a gun chambered for full-sized cartridges.

# LIST OF DAK BUNGALOWS.

— :o —

## BENGAL.

BUNGALOWS.	ROADS.	DISTRICTS.
Burrakur Sanitarium ...	Grand Trunk Road from Calcutta, <i>via</i> Phulta Ghat to Benares Frontier.	Burdwan.
Midnapur ...	Orissa Trunk Road from Calcutta, <i>via</i> Midnapur to Ganjam Frontier Ditto ditto	Midnapur.
Ulubaria ...	Calcutta and Jessore Road	Hooghly and Howrah.
Bongong ...	Kishnaghur Sudder Station	Jessore.
Kishnaghur ...	Kishnaghur to Bagula	Nuddea.
Bagula ...	Calcutta and Jessore Road	Do.
Jessore ...		Jessore.

## LIST OF DAK BUNGALOWS—(Contd.)

BUNGALOWS.	ROADS.	DISTRICTS.
Berhampur	Berhampur Sudder Station	Murshidabad.
Dowlutpur	Maldah	Dinagepur.
Godagaree	Godagaree	Rajshahi.
Tannore	Tannore	Do.
Rungpur	Rungpur, <i>via</i> Kurigram to Dhoobree	Rungpur,
Kuriagram	Ditto ditto	Do.
Choonbutty	Caragolah Ghat to Darjeeling	Darjeeling.
Kurseong	Ditto ditto	Do.
Siliguri	Ditto ditto	Do.
Titalya	Ditto ditto	Jalpaiguri.
Jalpaiguri	Road from Titalya to Kooch Behar, <i>via</i> Jalpaiguri	Do.
Dacca	Sudder Station	Dacca.
Daoodkandy	Megna River to Chittagong	Tippera
Chittagong	Ditto ditto	Chittagong.
Barrh	Barrh Railway Station to Kutcherry	Patna.
Khagowl	Dinapur to Nowbutpur	Do.
Baktiarpur	Buktiarpur to Behar	Do.
Bankipur	Sudder Station	Do.
Behar	Buktiarpur to Behar	Do.

## LIST OF DAK BUNGALOWS—(Contd.)

BUNGALOWS.	ROADS.	DISTRICTS.
Sasaram	Grand Trunk Road from Calcutta, <i>via</i> Phulta Ghat to Benares Frontier	Shahabad
Dehree	Ditto ditto	Do.
Arrah	Sasaram to Arrah	Do.
Buxar	Koelwar to Chowsa	Do.
Mozufferpur	Mozufferpur to Hajipur	Mozufferpur.
Hajipur	Ditto ditto	Do.
Durbhanga	Durbhanga to Mozufferpur	Durbhanga.
Madhubani	Durbhanga to Madhubani	Do.
Chupra	Main Road Chupra Station	Sarun.
Jellasore	Orissa Trunk Road from Calcutta, <i>via</i> Midnapur to Ganjam Frontier	Balasore.
Balasore	Orissa Trunk Road from Calcutta <i>via</i> Midnapur to Ganjam Frontier	Do.
Barripur	Ditto ditto	Do.
Chandbally	Bhuddruck to Chandbally	Do.
Cuttack	Orissa Trunk Road from Calcutta, <i>via</i> Midnapur to Ganjam Frontier.	Cuttack.
Puri	Puri to Cuttack Road	Puri.

## LIST OF DAK BUNGALOWS—(Contd.)

BUNGALOWS.	ROADS.	DISTRICTS.
Giridhi	Giridhi to Doomree Road	Hazaribagh.
Doomree	Grand Trunk Road from Calcutta, <i>viâ</i> Phulta Ghat to Benares Frontier	Do.
Parishnath Hill	Ditto	Do.
Bagodhur	Ditto	Do.
Ramghur	Ramghur to Gola	Do.
Topchanchy	Grand Trunk Road from Calcutta, <i>viâ</i> Phulta Ghat to Benares Frontier	Do.
Sherghatty	Ditto	Manbhumi.
Baroon	Ditto	Gya.
Gya	Road to Patna, <i>viâ</i> Gya	Do.
Jahanabad	Ditto	Do.
Madhupur	East Indian Railway, Chord Line	Sonthal Parganas.
Caragola	Caragola Ghat to Darjeeling	Purneah.
Purneah	Ditto	Do.
Dingra	Ditto	Do.
Kissengunge	Ditto	Do.

**Darjeeling District** ... Senchal—6 m., Rangiroon  $6\frac{1}{2}$  m., Badamtam  $7\frac{1}{2}$  m., Kalimpong 28 m., Rissisoom 38 m., Pashoke  $17\frac{1}{2}$  m.

**Nipal Frontier Road**—Jorpokri 13 m., Tonghe 23 m., Sandakphu 38 m., Phalut 51 m., Cheabhanjan  $57\frac{1}{2}$  m., Dentam 64 m., Pamiongchi 76 m., Rinchingpong 86 m., Chakung 98 m.

**Jelap Pass Road**—Ari 51 m., Sadongchen 59 m., Gnatong 67 m., Namchi 17 m., Sang 37 m., Pakyong 53 m., Gantak 65 m., Tumlon 81 m., Samateh 97 m., Cheongtang 122 m.

**Teesta Valley Road**—Pedong 43 m., Pashoke 17 m., Tista Bridge 19 m., via Rangeet; Raing 25 m., Kalijhora 32 m.

#### UNITED PROVINCES OF AGRA AND OUDH.

<i>Names of Districts.</i>	<i>Names of Dak Bungalows.</i>
Allahabad Division	Banda, Futtahpur, Nahaba, Hamirpur and Jaunpur.
Agra	Agra, Etah, Etawah, Farrakabad, Mainpuri, Shakuabad, Bewar and Muttra.
Benares	Benares, Azamgarh, Basti, Ghazipur, Gorakhpur and Mirzapur.
Jhansi	Jalaun, Orita, Kalpi, Jhansi, Moth, Babina, Lalitpur, Tulbihat and Sena Ghat.
Kumaon Division	Almora, Pooree, Ramgarh, Bhimtal, Ranibagh, Dwarahat, Sumsur, Majkholi, Kathmal, Lamgurha, Morahula, Kaladunghi, Mangoli, Naini Tal, Khyrna, Ranikhet, Punwanolah, Hewulbagh, Ganore, Cassi, Takula, Debiabura, Dhanogarh, Chira, Garna Bans, Gangalihat, Naini, Bageshar, Kapkote, Lohaghat, Dhamheri, Khatee, Dwali and Furkia.

## UNITED PROVINCES OF AGRA AND OUDH.—(Contd.)

<i>Names of Districts.</i>	<i>Names of Dak Bungalows.</i>
Meerut	... Aligarh, Futtehpur, Bulandshahr, Meerut, Muzaffarnuggur, Saharanpur, Mohand, Gangoh and Roorkee
Rohilkund Division	... Bareilly, Bajheri, Bijnour, Budaon, Moradabad, Daribal and Shahjehanpur.
OUDH.	
Fyzabad	... Fyzabad.
Lucknow	... Bara-Banki.
Rae Bareli	... Rae Bareli, Sultanpur and Partabgarh.
Sitapur	... Sitapur and Hardoi.
PUNJAB.	
Amritsar	... Amritsar.
Bannu	... Bannu, Ghaznikhet, Isakhel, Kalabough, Lakhi and Serai Pezu.
Dagshai	... Dahurrumpur, Solon, and Terai.
Dalhousie	... Batala, Dhur, Dinangar, Dunera, Gurdaspur, Camool, Pathankot, Shahargarh and Shahpur.
Delhi	... Delhi, Kutab and Mehrowali.
Dera Ghazi Khan	... Amdani, Dera Ghazi Khan, Janpur, Kot Chuta, Mahammadpur, Mongai, Royhan, Rojanpur, Rehha, Shaheddrin and Townsa.
Dera Ismail Khan	... Bahal, Bhakkur, Chunda, Dero, Hathala, Karor, Kulachi, Leah, Mankera, Meran, Yarick, Paniola, Fatteh Khan, Kelur Kot, Tinda Hedim, Chooni, Bandh, Kiri, Shamozai, Velrowrh and Munikera.
Ferozepur	... Ferozepur Cantonment and Moga.

## PUNJAB—(Contd.)

<i>Names of Districts.</i>	<i>Names of Dâk Bungalows.</i>
<b>Garhwal</b>	... Adwani, Bungidhar, Chipalghat, Dadamandi, Kotdwara, Srinuggur, Kainur, Banghat, Pauri, Lobha, and Lansdowne. There are also Forest Bungalows at Kirsu, Bainswara and Kirsal.
<b>Gujranwala</b>	... Gujranwala and Wažirabad.
<b>Guzrat</b>	... Dinga, Doulatnuggur, Guzra, Khorian, Kola and Lallachusa.
<b>Gurdaspur</b>	... Batala, Dhar, Dinangar, Dunera, Gurdaspur, Karnul, Pathankot, Shukargarh and Shahpur.
<b>Gurgaon</b>	... Farakhnagar, Gurgaon, Palwal, Rewari and Sohna.
<b>Hazara</b>	... Abbottabad, Bagnotur, Changlagully, Dangagully, Garhi, Habibully, Haripur, Khandiani, Khanpur, Kohala, Koleka, Mansehra and Mari.
<b>Hissar</b>	... Futtahabad, Hensee and Hissar.
<b>Hoshiarpur</b>	... Bharwani, Guzraib and Hoshiarpur.
<b>Jhang</b>	... Chap Barere, Chariol, Jhang, Kot-in-shah, Shoikot and Toba Tek-Singh.
<b>Jhilam</b>	... Abbottabad, Bagnotur, Changlagully, Dangagully, Jhilam and Kalapani.
<b>Jullundur</b>	... Adampur, Bunga, Jullundur Cantonments, Nakodar, Nurmahol, Phagwarah, Phillour, Kahon, Ratarpur, and Shahkote.
<b>Kangra</b>	... Badwans, Bagahoo, Bajaora, Bijnath, Bishit, Chui, Dadh, Dalarsh, Dard, Dera, Dharmasala, Dheloo, Dwara, Jatingri, Jibi, Kangra, Karoon, Kokser, Kot Kotla, Larji, Littlepur, Mangloor, Nurpur, Palampur, Plack, Ralla and Sultanpur.
<b>Karna</b>	... Karnal and Paniput.

PUNJAB—(*Contd.*)

<i>Names of Districts.</i>	<i>Names of Dak Bungalows.</i>
Kohat	... Bahadur Khan. Banda, Dhodha, Gandiaur, Gombat, Hangu, Khowaja Khizir, Khushalgarh, Khat, Lachi, Litamar, Mir Kailan, Nizampur, Surizai, Thall and Togh.
Lahore	... Lahore and Mian Mir.
Ludhiana	... Ludhiana.
Montgomery	... Chichawatni, Montgomery and Okara.
Multan	... Multan and Sher Shah.
Murree	... Bharakao, Changlagully, Dimal, Dangagully and Tret.
Muzaffargarh	... Kureshi and Muzaffargarh.
Peshawar	... Attock, Cherat, Jumrood, Muttanee, Nisatta, Nowshera and Peshawar.
Rawal Pindi	... Attock, Barraao, Bhero, Dewal, Futtehjhhang, Goojur Khan, Hussanabdal, Huttian, Jhand, Jhang, Kala-ka-Sarai, Rawal Pindi, Sungjani and Toba Tek Singh.
Rohtak	... Bahadur Garh, Madina and Rohtak.
Shahpur	... Bhera, Chock Ram Das, Jhowram Miani, Shahiwal, Shahpur, Shahpur Cantonment, Shohi and Sekersar.
Sialkot	... Sialkot.
Simla	... Bagi, Bali, Dhampur, Kiarighat, Kotegurh, Kasauli, Mahasson, Matiana, Narkunda, Phagoo Sairee, Seog, Solon, Sungir and Throg.
Sirsa	... Arniwala, Dabwali, Fazilka, Lamba, Molout, Narel, Odha, Peeplee, Sirsa and Sahuwala.
Umballa	... Umballa Cantonment.

## CENTRAL PROVINCES.

<i>Names of Districts.</i>	<i>Names of Dak Bungalows.</i>
Nagpur	... Nagpur (Hotel D. B.) Ramtek, Kamptee, Mansar and Deolapar.
Wardha	... Wardha and Hinganghat.
Chanda	... Chanda and Warora.
Bhandara	... Bhandara and Gondia.
Balaghat	... Balaghat (Combined Dak and Inspection Bungalow).
Hoshangabad	... Hoshangabad, Itarsi, Hurda, Piparia, Singanama, Pachmarhi (Hotel Dak Bungalow) and Dhupgarh.
Nimar	... Kbandwa and Burhanpur.
Betul	... Badnur, Multai and Shahpur.
Chhindwara	... Chhindwara, Ramakona, Chowrai and Pandhurna.
Narsinghpur	... Narsinghpur and Kareli.
Saugor	... Saugor, Maltone and Baroda Rehli.
Damoh	... Damoh and Singrampur.
Jubbulpur	... Bargi, Bhairaghpat or Marble Rocks, Sihara and Katni.
Seoni	... Dhuma, Lakhnadone, Chapara, Seoni and Kurai.
Mandla	... Tikaria (Combined Dak and Inspection Bungalow) and Mandla (Combined Circuit-House and Dak Bungalow).
Raipur	... Raipur, Arrang, Tumgaon and Jhalap.
Bilaspur	... Bilaspur.
Sambalpur	... Sambalpur.

## SHIKAR WRINKLES.

—:o:—

*Ammunition.*—For Himalayan shooting, gun cartridges should be packed in soldered tin boxes of 100 each and distributed one in each cooly load of personal baggage. Rifle cartridges are best packed in tin cases, after being previously rolled with paper after the manner of Government ammunition.

*Aneroid Barometer.*—For calculating heights and telling the weather, the Himalayan Aneroid Barometer is an excellent instrument.

*Arsenical Soap.*—Bar soap, 2 lbs., powdered arsenic, 2 lbs.; spirits of turpentine, quantity sufficient; shred the soap and pound it in a mortar, gradually adding the arsenic, the turps being added from time to time to prevent the arsenic from being inhaled,—a dangerous process.

*Axe.*—For big game shooting the shikari should carry a small steel axe with a 12-inch handle. It is useful for breaking up large game, for clearing jungle, cutting tent pegs or steps in ice and snow. A *kukri* is just as handy.

*Bees.*—In howdah shooting carry a rug or two as a defence against the attack of bees whose nests are occasionally disturbed in the passage through the jungle.

*Binoculars and Telescopes.*—Those made of aluminium are the lightest.

*Bird Lime.*—Make fairly deep incisions in the trunk of the *pacour* tree (*ficus religiosa*). The best time to do it is early in the morning—and remove the exudation in the evening, picking it up on a stick or twig. Let it stand 12 hours, then removing it from the stick stir it up, adding mustard or castor oil (the former preferable) until it is of the proper consistency.

*Blisters*—Never cut these. Always prick them sideways. *Homocea* is a good dressing.

*Boots for hill shooting* should be roomy enough to admit of two pairs of thick socks being worn : wear a thin silk or cotton pair next the skin and a woollen pair over these and you will never have a blister.

*Boots for snipe shooting*—Nothing beats a stout well-made pair of half boots (*without* wide welts, which lift pounds of mud). After using, dry them in the sun, *never* near the fire. To keep them soft and serviceable, dress with neat's foot oil after they are thoroughly dry and just before they are used again, and in the off season give them a dressing or two. A good dubbin is also to be recommended. See to the laces yourself.

*Boots, Dubbin for.*—(1) Resin, 2 oz.; tallow, 1 oz.; train oil,  $\frac{1}{2}$  pt.; mix. (2) Porpoise oil,  $\frac{1}{2}$  pt.; tallow,  $\frac{1}{2}$  lb., mix. But nothing beats pure neat's foot oil, the stuff sold in the bazaars as neat's foot oil is frequently largely adulterated with mustard oil which burns leather. Dale's dubbin is also excellent.

*Bugs, fleas, &c.*—Never go into camp especially in the Himalayas, without a supply of Keating's or Kemp's Circassian Insect powder.

*Camp Doctoring.*—For burns, dress with olive oil or, what is better, equal parts of olive oil and lime water soaked in lint and wrapped in a thick layer of cotton-wool. After two days dress with either carbonate of soda, powdered chalk, starch, or flour. To arrest slight bleeding, use Friars' balsam, or charred cotton rags; for excessive bleeding, ligatures and plugs of rag with the balsam. Wasp and bee stings should be removed with tweezers if possible, then rub with dilute ammonia, or with the juice of a fresh cut onion. For very severe insect bites and stings, apply carbolic acid lotion in strength of 1 part to 20 of water, soaked in lint. Whiskey, brandy or other spirit often allays the irritation of mosquito bites. For scorpion or centipede stings, the oil scraped out of a tobacco pipe is a good application, or strong solution of common salt put on with a rag.

Boils can be quickly brought to a head with a mixture of soap and sugar. Blisters should always be pricked at the base and the water gently expressed. Emetics—a charge of gunpowder in a tumblerful of water, a large drink of salt

and hot water ; or soap suds or finger down the throat may be resorted to. For blistered feet, rub with spirits mixed with tallow dropped from a candle—an excellent recipe. For wounds caused by animals, open the bites or scratches, cleanse thoroughly with water and treat liberally with strong carbolic oil, and poultice if required. For chafes use "Homocea." For sunburn, vaseline. For chilblains in their first stage whiskey or brandy, or any spirit well rubbed in, and as a preventative the socks soaked in spirit before being put on. For bad cases, almost any of the recognised patent medicines or equal parts of tincture of camphor and tincture of belladonna rubbed in, night and morning. Leeches must be removed with salt, and if there is profuse bleeding, it should be treated with lint dipped in spirits of wine, or tincture of iron applied with a camel's hair brush. For bug bites, vinegar and water. For all strains and sprains, Elliman's Embrocation ; or Bow's liniment ; or weak arnica lotion in the proportion of 60 minims to 8 oz. of water.

*Camp Fire, The.*—The logs for the camp fire should be arranged like radii of a circle, the fire forming the centre and the logs overlapping one another on the fire ; they must be pushed inwards as their ends become burnt.

*Camp Ovens.*—There are two useful styles : (1) Dig a small deep hole in the ground, wider at the bottom than at the top, which should not be more than a foot in diameter, plaster it round with clay ; light a fire in it and keep it up until

the pit has become red-hot round the sides. Remove ashes and embers, place your bread at the bottom, cover the mouth with a stone or a deckchie cover, and keep the air out by putting clay round it. (2) Is made on the same principle but with stones or bricks above the ground and covered inside with clay, and outside with earth or mud. A kerosine tin makes quite a good camp oven.

*Camp, site for.*—High ground and shade, proximity to water and absence of scrub and dense vegetation are the chief points to consider. The tent should be occasionally shifted, a change of flooring being desirable. Servants' tents, kitchen and stables should be pitched to leeward if possible.

*Clothes, to dry.*—Make a rough tent-shaped framework of branches, maintain a slow fire, of charcoal for choice, in the centre of the inclosure and arrange the clothes over the framework.

*Clothing.*—Must be left to individual taste, but the following articles are recommended for shooting in the Himalayas. Cardigan jacket or waistcoat, chamois leather vest, woollen gloves, ulster, water-proof coat (*Aquascutum*), Balaclava cap, leggings or putties, woollen socks, flannel belts for sleeping in, and the usual flannel underwear. For snipe shooting shorts coming fairly over the knee are infinitely more comfortable than knickerbockers or breeches of any style.

*Elephant, height to calculate.*—Twice round an elephant's foot gives his height within a fraction of an inch. Multiply the diameter by 6. Thus

a footprint 1 foot in diameter will be practically 3 feet in circumference, double this—height, 6 ft.

*Feet, care of the.*—In long marches over dry ground powdered boracic or boric acid dusted well in the sock, especially at heel and toe and between the toes of the foot, will prevent many a blister. Soap and vaseline are also good.

Before going out snipe shooting, a good rubbing of the legs and feet with mustard and eucalyptus oil in equal parts is a good tip. Soaking the feet in strong brine, or a strong alum solution hardens them. Changing the socks from one foot to the other every 10 miles is a good tip.

*Filter.*--The best for camp use is the Berkfield.

*Fireproofing tents, cordage and wood.*—Beric acid, 6 lbs.; sal ammoniac, 15 lbs.; pure borax, 3 lbs.; water, 100 lbs. Mix and saturate the articles.

*Fish, to calculate weight of.*—The cube of a fish's length gives his weight in lbs.; it is a rough and ready method, but it is near enough. Here is another formula:—Length plus one-third length multiplied by the square of the girth, and divided by 1,000. As thus,—with two fish of 40 and 30 inch respectively it works out as follows: —

$$40+13 \text{ (excldg. fractions)} = 53 \\ 20^2 = 400 \\ \text{divided by } 1,000 = 21$$

Weight of first fish, 21 lbs.

$$| 39+13=52 \\ | 18^2=324 \\ \{ 52 \times 324=16,848 \\ \{ \text{divided by } 1000=16.8$$

Weight of second fish nearly 17 lbs.

*Fishing box.*—A very compact and handy box to hold fishing gear is made as follows: Material, japanned tin. Length, 10 inches; width, 5 inches; depth, 6 inches; depth of lid,  $1\frac{1}{4}$  inch. The bottom of the box is divided into two or three compartments for reels and spoons; on this rests a tray fitted for artificial baits, &c., and on this a second tray partitioned off at one end for plummets, lead wire, gimp, swivels, &c., and having two partitions down the sides for floats, the centre being divided into compartments for hooks. In the lid, secured by hinged doors, are compartments for traces and a fly book.

*Fishing lines, to waterproof.*—Two parts boiled linseed oil, one part gold size: put in bottle and shake well when it is ready for use. Apply with flannel. Expose line to air and dry. After using the line two or three times repeat.

*Fly tying, colourless wax for.*—Melt some white rosin and add a little castor-oil. When well melted, stir well, and add oil according to season of the year.

*Goggles* are extremely useful in the Himalayas when working on snow. Native servants should always be provided with them as they seem predisposed to snow blindness. They are also of great comfort in the hot weather on the plains, their use tending to sensibly reduce the temperature of the body.

*Gun barrels, to brown.*—Spirits of wine,  $1\frac{1}{2}$  oz.; tincture of iron,  $1\frac{1}{2}$  oz.; corrosive sublimate,  $1\frac{1}{2}$  oz.; sweet spirits of nitre,  $1\frac{1}{2}$  oz.; blue vitriol, 1 oz.;

nitric acid,  $\frac{3}{4}$  oz. Mix and dissolve in a quart of warm water and keep in a glass bottle or jar. Clean the barrel well with a solution of caustic soda and remove all grease or oil. Then polish with emery cloth so as to leave an even bright surface and free of finger marks. Stop up the breech and muzzle with plugs. Then apply the mixture with a sponge or rag and expose to the air for 24 hours, and rub off all rust with a steel scratch brush. Repeat this process three or four times, and finally wash in boiling water and wipe with linseed oil, or varnish with shellac.

*Gun covers* of waterproof material are very useful when shooting in the Himalayas.

*Guns, to clean, and preserve.*—Use "Orite" made by Messrs. P. Orr & Sons, Madras. It is wonderful stuff. "Salvarol" made by the Mars Oil Co., 10 & 12, Milton St., London, is also good for barrels, locks and fishing reels, it prevents and removes rust.

*Hallal, the.*—Left to themselves natives, in performing this rite, will usually cut an animal's throat by slashing it from ear to ear close under the jaw, utterly ruining the head for mounting. A hunting knife should be used, and it should be plunged into the throat from one side, just at the junction of the neck and shoulder; if properly done, the double-edged knife will effectually sever veins and arteries.

*Horns, to preserve.*—When the skulls are dry, saw off the tops of the standards, leaving only half their length to support the horns. Horn and core should be poisoned with arsenic and corrosive sublimate.

*Howdah accessories.*—Refreshments in case of separation from the line, umbrella, waterproof sheet and a couple of rugs.

*Hunting Knife.*—The Shakespeare pattern probably enjoys most popularity.

*Sheels, useful articles for the.*—Shikar knife, cartridge extractor, whistle, pull through, rags, and stout string, which can be carried in the pocket or cartridge bag. Also a packet of cheap cigarettes for your men, a much appreciated luxury.

*Kit bags.*—Made of Willesden waterproof canvas with a double mouth, the inner closing with a lace and the outer with a chain and lock, are excellent for clothes and personal effects.

*Leaky Tents.*—Having discovered the leak, run the finger along the inside from the hole downwards towards the curtain until a wet streak is made. This will usually prevent dripping.

*Locks of guns* requires occasional careful inspection. For the working parts use the best Rangoon oil.

*Malaria.*—May be prevented by sleeping to leeward of a good fire. Quinine tabloids are useful.

*Matches* should be carried in bottles or air-tight tins.

*Measurements.*—Much difference of opinion exists as to the *proper* way to measure big game on the field. But it is believed that the following method has the approval of the majority. Taking a tiger as our subject, let his tail and nose be pulled out so as to have them as nearly as possible in a straight line. Drive pegs in at the tip of the nose and the tail, one close into the root of the tail, and one at the junction of the head and neck. Place the forepaws in a standing position and drive a peg in at the shoulders. Then take the following measurements : —(1) Length between tip of nose and tip of tail in a straight line between the pegs. (2) Length from tip of nose to tip of tail, following the curves of the head ; neck, shoulders and body. (3) Length of tail from root to tip. (4) Length of head from nose tip to nape. (5) Girths of upper arm, forearm, body, and head across the zygomatic arches. (6) Height at shoulder from the peg at the shoulders to the tip of the extended paw. (7) Ditto with the paw flexed and the leg straight as if the animal were standing. (8) Length of hind leg from stifle joint to toe. Then, if possible, the weight, not cleaned, and cleaned, and afterwards the length, breadth, height, and weight of the cleaned skull.

*Measuring Tape.*—The most durable are of the metal self-winding sort. They should be twelve feet long.

*Mildew* on binoculars, leather cases, books, etc., may be prevented by slight rubbing with vaseline before being put away.

*Momrogan.*—I, Mutton fat, 6 oz. II, Bees' wax, 3 oz. III, Resin, 1 oz. IV, Salad oil, 1 wineglass (cocoanut oil will do). V, Camphor, 1 oz. VI, Spirits of Turpentine, 1 wineglass. VII, Spirits of wine, 1 wineglass. Melt I, II, III and IV over a slow fire.—Then add V dissolved in VI and VII. Stir up well and strain through muslin.

*Moths* in skins may be kept away by borax, napthaline, or the dried leaves of patchouli known in the bazaar as *pocha puttha*.

*Mosquito curtain.*—A handy arrangement is a cane ring from which the curtain can be suspended ; the cane can be carried straight when not in use.

*Mosquitoes et hoc.*—There are many so called preventives of insect attack and our arch-enemies the mosquito, the sandfly, and the midge have constant war made upon them by inventors of insecticides. I have tried several, but find none equal to "Muscatal", for details concerning which readers are referred to the advertisement elsewhere. It is sweet-smelling, harmless,

not greasy, antiseptic and *efficacious*. Anoint your face, neck and hands with "Muscatol" and you may sit up all night in a *machan*, fish all day, or repose in your tent with assured immunity from bites. It is really wonderful stuff.

*Oilskin coat.*—The material should be fine twilled calico dipped three or four times in raw linseed oil with a little gold size or litharge in it (1 oz. to 1 pint oil) drying thoroughly between each coat in a current of air, and sheltered from sun and rain. Oilskins thus made are light and serviceable and last for years.

*Payments.*—Make all payments to beaters, villagers, coolies and shopmen, and dispense all *bucksheesh* personally. This saves immense trouble to yourself and those who come after you.

*Pipeclay.*—The Prickly Pear answers admirably for helmets, boots, saddles or anything that has to be pipeclayed. Cut up and bruise the hearts and boil with sufficient water to cover; let it simmer for two hours after boilings; strain and mix the pipeclay or "Blanco" with the liquid in the ordinary way. It will not come off and soil the clothes.

*Pull-through, The.*—Drop the plummet in at the breech and pull out from the muzzle.

*Revolver, how to blue.*—Dissolve 4½ oz. hyposulphite of soda in 1 qt. water, also 1¼ oz. acetate of lead in 1 qt. water. Mix the two solutions and boil in an

earthen or stone vessel. Clean the parts to be blued free from grease and oil with a solution of caustic soda, warm them and smear with the hot solution, using a piece of sponge or rag tied to a stick. When the colour develops, wash and wipe dry ; finish with boiled linseed oil.

Another way is—clean the barrels, chambers, and other metal parts of all greasy matter, polish them of an even brightness with emery and lay them in hot powdered charcoal until the proper blue is acquired, removing them and wiping them every five minutes to see how the blueing progresses.

*Rust on barrels.*—Remove by gentle and careful rubbing with emery cloth.

*Rust to prevent.*—Paraffin or mercurial ointment is the best to use. Also “Salvarol” (*vide p. 280, Guns*).

*Sandflies* will penetrate ordinary mosquito curtains ; where they abound use nets of fine *mul*.

*Scrubbs' Ammonia* in the bath, hot or cold, after the day's shoot, is almost magical in its effect.

*Servants.*—The fewer the better. One good general servant who can cook is enough. Feed and clothe him well, and keep him in good humour. Shikaris, trackers, gun carriers, coolies, messengers, etc., are best hired locally.

*Sight-protectors* are necessary for rifles when in the gun cases, especially in hill shooting, where there is a deal of rough jolting during the marches.

*Skinning and drying pelts.*—See *Practical Taxidermy* by Montagu Brown, F. Z. S., which gives full instructions with diagrams for removing the skins of animals and birds, preserving and mounting specimens in camp and at home, with full particulars of the various well-known processes and details about certain reliable patent stuffs. Messrs. M. R. Murray & Co., the well-known and excellent taxidermists and tanners of Harda, C. P., published in their catalogue some useful hints on the subject of camp taxidermy, from which I extract the following with acknowledgments to the firm.

Always dry any skin in *the shade*. Never leave fat on a skin.

Rub ground alum or wood ashes on to raw side of skin when pegged out to dry. Never use *hot* ashes, nor apply ashes of *any sort* to the hair side.

Rub plenty of alum on the ears, lips, nose, &c., both inside and out ; also to the feet of animals with claws. Arsenical soap should also be used, if possible, on the above portions to prevent insects.

Never despatch skins before they are thoroughly dry.

When ears and lips have quite dried, roll skin fur inwards with some naphthaline or camphor crystals inside, and be careful that the claws do not rub the fur.

When cutting deer heads from skin, always leave plenty of skin at throat. Never leave a skin attached to the horns. Cut up the back of the neck, and to each horn with Y shaped cut and dry separate.

*Skulls, to bleach.*—Dip for a few moments in a boiling solution of 1 lb. caustic soda and 1 gal. water, rinse thoroughly in water and rub down with pumice stone. Then expose to sulphur fumes and give a final rinsing in water.

*Skulls, to macerate.*—Soak in water until all the flesh and cartilage rots off, changing the water frequently, care being taken to collect all teeth that may drop out. The skulls should then be bleached in the sun.

*Slings for Rifles.*—These have their advocates and detractors. On bad ground in the hills, when both hands and feet are needed to assist progress, they are undoubtedly useful. The swivel hooks are noisy and lose their hold at awkward moments ; they also mark the barrels ; the bar attachment is the best and should be placed one close to the toe of the butt and the other an inch or two in front of the fore-end.

*Specimen Tickets.*—Sportsmen naturalists should very carefully note all details on the tickets they attach to their specimens. The following particulars should be noted:—Date, locality, weather conditions, sex, estimated age, condition of animal, measurements, weapon, bullet, and charge, etc. The same in the case of birds, and if the nest is discovered a description thereof, its exact situation and description of the eggs.

*Sportsman's Library, The.*—The following books on Indian Sport and Natural History should be on every sporstman's bookshelf:—

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|---|---|
| “The Old Forest Ranger.” (Major W. Campbell.)                 | “Eight Years in Ceylon.” (Baker.)                           |
| “Seonee.” (Sterndale.)  | “Rifle and Hound in Ceylon.” (Baker.)                       |
| “Large and Small Game of Bengal.” (Baldwin)                   | “Wild Beasts and their Ways.” (Baker.)                      |
| “Tiger Shooting in India.” (Rice.)                            | “Sportsman's Vade Mecum.” (K. C. A. J.)                     |
| “Wild Sports of India.” (Shakespear.)                         | “The Hindu Koh.” (Genl. Macintyre.)                         |
| “Wild Men and Wild Beasts.” (Gordon Cumming.)                 | “Tiger Shooting in the Doon and Alwar” (Col. Fife-Cookson.) |
| “The Spear and the Rifle.” (Shikaree.)                        | “A Summer Ramble in the Himalayas.” (Mountaineer.)          |
| “Denizens of the Jungle.” (Sterndale.)                        | “Large Game Shooting ” (Kinloch.)                           |
| “Shikar Sketches.” (Moray Brown.)                             | “Sport in Bengal.” (E. B. Baker.)                           |
| “Williamson's Oriental Sports.”                               | “Hog Hunting in the East.” (Newall.)                        |
| “Reminiscences of Sport in India.” (Burton)                   | “Twenty Years' Pigsticking in Bengal.” (Raoul.)             |
| “Highlands of Central India.” (Forsyth)                       | “Small Game of Bengal.” (Raoul.)                            |
| “Thirteen Years among the Wild Beasts of India.” (Sanderson.) | “Pigsticking.” (Baden-Powell.)                              |

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| "In and beyond the Himalayas" (S. J. Stone)                 | "The Big and Small Game of India." (Lydekker.)            |
| "Sport in the Highlands of Kashmir." (Darrah.)              | "Rifle and Romance in the Indian Jungle."                 |
| "Tropics and Snows" (R. G. Burton.)                         | Capt. A. I. R. Glasfurd.                                  |
| "Sport and Travel." (Moray Brown.)                          | "The Sportsman's Book for India." Edited by F. G. Aflalo. |
| "Guide to Kashmir." (Col. Ward.)                            | "Jerdon's Birds."   |
| "The Encyclopaedia of Sport."                               | "The Game Birds of India." (Oates.)                       |
| "The Indian Field" Shikar Book.                             | "The Indian Ducks" (Stuart-Baker).                        |
| "The Rod in India." (Thomas.)                               | "How to know the Indian Ducks." (Finn.)                   |
| "Tank Fishing in India." (Thomas.)                          | "The Indian Waders." (Finn.)                              |
| "Freshwater Fishes of India." (Beavan.)                     | "Fancy Pheasants." (Finn.)                                |
| "Day's Fishes."   | "The Birds of Calcutta." (Finn.)                          |
| "Fishing in the Kumaon Lakes."                              | "The Birds of Bombay." (Eha.)                             |
| "The Angler's Handbook."                                    | "Le Mesurier's Birds."                                    |
| "The Fauna of British India." (Series.)                     | "DeNiceville's Butterflies."                              |
| "Jerdon's Mammals."   | "The Art of Travel."                                      |
| "Mammalia of India." (Sterndale.)                           | "The Game Birds of India." (Hume and Marshall.)           |
| "The Deer of all Lands." (Lydekker.)                        |   |
| "The Wild Oxen, Sheep, and Goats of all Lands." (Lydekker.) |   |

*Stings.*—For scorpion stings Vinegar, even if not immediately applied, is an infallible remedy; ammonia (Scrubbs will do) or onion juice for hornet, wasp or bee stings.

*Tanks, to clean.*—Use aluminium ferræ sulphate.

*Tea, Russian.*—Make tea in the usual way, letting it stand exactly three minutes; pour off into a receptacle to cool. When quite cold add a few slices of fresh cut lime and squeeze in a little of the juice. Add sugar if preferred; it is better without. This is undoubtedly the best drink to work on. It can also be made with cold water, but must be allowed to stand several hours.

*Note.*—On no account put this tea into water bottles or receptacles made of aluminium or enamelled iron, unless you desire to drink *ink*, which is produced by the chemical action of the tannin on the aluminium, or the iron in the enamelled ware, should the latter be chipped or cracked.

*Tinder-Box.*—Boxes fitted with steel, agate and tinder may be purchased; but when not obtainable, any piece of steel—pocket-knife, horse-shoe, etc.—may be used with flint, quartz, granite or other stones. The tinder should be in a tin box and may consist of charred rags, touchwood, dry horse-dung, or dry paper previously soaked in saltpetre. Hold the tinder-box and flint in the left hand, the flint well over the mouth of the box and close to the tinder; strike sharply downwards with the steel. When the spark has ignited the tinder cause it to burst into flame by blowing on it or swinging it round in circles with the shoulder as a centre, then place the flaming matter on top of the light combustibles which are to start the fire.

*Tents* must be thoroughly dried before being put away. A few pounds of naphthaline rolled up with them will keep away insects.

*Tents, to scour and clean.*—Use Dacca soap, or a fairly strong solution of sujee mutty and water and scrub well. To prevent mildew, 1 lb. sulph. zinc in 40 gals. water, then add 1 lb. sal. soda, and, when dissolved, add 2 oz. tartaric acid. Soak 24 hours and dry without wringing.

*Twist barrels, browning for.*—Black brimstone,  $\frac{1}{2}$  oz. ; tincture of steel,  $1\frac{1}{2}$  oz. ; blue vitriol, 1 oz. ; corrosive sublimate,  $\frac{1}{2}$  oz. ; copperas,  $\frac{1}{2}$  oz. ; nitric acid, 2 drms ; spirits of nitre,  $1\frac{1}{2}$  oz. Add three parts of rain-water and bottle. Proceed as for ordinary browning (see Gun barrels to brown). This mixture causes the twist of the barrel to be visible after application.

*Water-bag or Chagul.*—See description in chapter on Camp Equipment.

*Water, muddy, to settle.*—A pinch of powdered alum will quickly precipitate all matter held in suspension.

*Water, to purify.*—Use a few crystals of permanganate of potash, then boil. But this is a very rough and ready method. The most perfect thing known is the "Water Sterilizing Tablet" sold by Messrs. Smith, Stanistreet and Co., Calcutta.

*Water Telescope.*—A long tin tube 4 or 5 in. in diameter with a piece of glass let in at the lower end, and the outside painted khaki. An interesting and useful accessory to bottom fishing in tanks.

*Watch, to use as a compass.*—Hold the watch flat in the hand with the hour mark then indicated at the time of day pointed directly at the sun. The point half way between that hour mark and XII will be opposite to due south in the sky. For example, supposing it is four o'clock in the afternoon, hold the watch so that IV points straight at the sun, the mark II will indicate due south. Or suppose it is 10 o'clock in the morning, hold the watch as before till X points straight at the sun ; XI will point due south.

*Wounds, bites or clawings by Carnivora.* “ W ” some time ago, wrote to *The Pioneer* the following excellent letter :—

I always had several boxes or dressing handy, prepared antiseptically in the following way. Each box was made up as follows :—(1) A tin box with a well fitting lid, several inches square or in diameter—a half pound tobacco tin box answers very well ; (2) half an ounce of iodoform ; (3) four ounces of boric acid (boracic acid) ; (4) two bandages, one, four feet long and two inches wide, the other half that length and breadth ; (5) a quarter of a pound of antiseptic wood wool ; (6) a small roll of adhesive plaster on linen ; and (7) a small tin caster with a moveable top, similar in size and shape to the salt and pepper castors one carries into camp. (This can be made in the bazaar for a few pice). Get your box well cleaned and dried, put the iodoform loose into it, then pack with the bandages, plaster, caster, and boric acid. The caster should first be filled with

a mixture of equal parts of iodoform and boric acid, and the wood wool pressed into all the corners with clean hands. Close, seal with bands of Gummed paper till perfectly air-tight, and leave out in the hottest sun or near a fire for some days. The contents are rendered quite aseptic, and will last (as long as the box is air-tight) for years. Men going out pigsticking or shooting should have two or three of these boxes, as wounds of horses are treated in the same way as those of men.

To treat a fresh wound with the above, get some two pints of fresh clean water (boiled water if practicable, and there is time), empty the boric-acid powder into it, then cleanse the parts with a dab of the wool soaked in the lotion, frequently changing the wool, and lastly dry with another piece of clean wool. Dust the wound and parts around with a liberal mixture of the powder from the caster, cover with a thin pad of wool, keeping it in its place with straps of plaster, and finally cover everything with the rest of the wool and the bandage. The wound should, if possible, be quite dry when the final layer of wool is applied. If the dressings become soaked with blood or accidental moisture they must be changed, not otherwise. If the wound is punctured, the whole should be liberally filled with the dusting powder. If the injuries are severe, give a pill of opium about twice the size of a pin's head, and after a few hours' rest remove to the nearest hospital. These boxes can be made inexpensively at the nearest hospital or chemist's shop, and last for ever. Only one should be

opened at a time. Remember, too, to always use clean hands and tools in dressing a wound. Another useful thing in camp is a half ounce stoppered bottle of a four per cent. solution of cocaine for inflamed mosquito bites, wasp stings, and particularly for blows or injuries to the eye. A few drops every hour is sufficient. The relief is very great.

#### RESTRICTIONS REGARDING .303 AND MARTINI-HENRI RIFLES.

The Government have prohibited the importation of the above rifles into the country for sale or for private use.

Those who possess these weapons can, however, retain them and are allowed to purchase 200 rounds of ammunition per annum.

The procedure is for sportsmen to apply (in Presidency-towns) to the Commissioner of Police and in the Mofussil to the Magistrate of the District, who will grant a license, free of charge, for the purchase of this quantity. At the time of ordering, this license *must* be sent to the dealer as his authority to supply. Only certain firms under special sanction of Government are allowed to import and stock Cartridges for these weapons. *In Calcutta*—Messrs. Manton & Co., Messrs. Walter Locke & Co., Messrs. Rodda & Co., Messrs. Lyon & Lyon, and the Army and Navy Stores. *In Madras*—Messrs. P. Orr & Sons, and Messrs. Oakes & Co. *In Bombay*—The Army and Navy Stores.

## SNAKE-BITES, TREATMENT FOR.

There is at present nothing that beats the permanganate of potash and lancet outfit as supplied by Messrs. Smith, Stanistreet, of Calcutta.

This instrument consists of a sheathed lancet with a space at its base containing crystals of permanganate of potash. It has been designed by Sir Lauder Brunton as an easily portable and immediately available instrument for the treatment of snake-bites; and has been used by Dr. Leonard Rogers in a series of experiments which demonstrated, in the first place, that permanganate of potash when mixed with venoms of any class of poisonous snakes immediately destroys their action, and renders them inert and harmless, when injected into susceptible animals in quantities usually equivalent to many times a fatal dose; and secondly, that animals treated by the method described below at from half a minute to half an hour after receiving from two to ten fatal doses of venom could be saved from an otherwise inevitable death.

In a case of snake-bite, if the wound is on a limb, first apply a ligature between the bite and the body sufficiently tightly to stop the circulation, in order to prevent any further absorption of the poison into the circulation. This may be done by tying a handkerchief or piece of cotton clothing loosely round the limb, passing a piece of stick through it, and twisting it round until the pulse cannot be felt beyond the ligature. Then, with the lancet make a cut

through the mark of each fang, in the long axis of the limb, about two inches in length and from one third to half an inch in depth, and raise the edges of each wound slightly so as to form small pockets. A red watery effusion will mark the site of the venom. Check any slight bleeding by gentle pressure on the wounds and then empty the crystals of permanganate into the wounds (the amount of crystals the lancet holds would be at least enough for the treatment of two cases of snake bite) moisten with a few drops of water or saliva to partially dissolve the crystals, and thoroughly rub them in for several minutes until the whole surface of the wound is blackened : apply a bandage (and if available a dressing) tightly over the wounds and then remove the ligature from the limb.

By this method of treatment any venom, which has not already entered the general circulation, is destroyed locally ; and if this is done before a fatal dose has been absorbed, the life of the patient will be saved. After the treatment the patient should be kept quite quiet in the recumbent posture, and medical advice obtained ; or be carried to the nearest hospital.

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# THE PROPOSED INDIAN GAME PROTECTION ACT.

—:o:—

NOTE.—*Not passed up to time of going to press.*

WHEREAS it is expedient to make better provision for the protection and preservation of game and fish ; it is hereby enacted as follows :—

Short title, extent 1. (1) This Act may be called the Game Protection and commencement. Act.

(2) It extends to the whole of British India, including British Baluchistan, the Santhal Parganas and the Pargana of Spiti ; and

(3) It shall come into force on such date as the Governor-General in Council may, by notification in the Gazette of India, prescribe in this behalf.

Definitions. 2. In this Act, unless there is anything repugnant in the subject or context,—

(1) the expressions “game” and “large animal” shall have such meanings as the Local Government may, by notification in the local official Gazette, define for them respectively, either generally for all its territories or specially for particular local areas :

Provided that in the absence of any such definitions as aforesaid the said expressions shall have the following meanings, that is to say :—

- (a) “ game ” shall mean the following animals when in their wild state, namely—
  - (i) all kinds of pigeons and sandgrouse ;
  - (ii) all kinds of peafowl, jungle-fowl, pheasants, partridges, quail, spurfowl, bustards, floricans, and their congeners ;
  - (iii) all kinds of geese and ducks and their congeners ;
  - (iv) woodcock and all kinds of snipe ;
  - (v) hares ;
  - (vi) asses, all kinds of rhinoceroses, oxen, bison, and buffaloes, all kinds of sheep, goats, antelopes and their congeners, and all kinds of gazelles and deer ; and
  - (vii) any other kind of animal which the Local Government may, by notification in the local official Gazette, declare to be one which it is desirable to preserve from extinction ; and
- (b) “ large animal ” shall mean any animal included in sub-clause (vi) of the definition of “game” ; and

(2) "specified kind" when used in relation to game, large animals or fish, means any kind of game, large animals or fish whether distinguished by species, immaturity, sex or otherwise, which may be specified in this behalf.

## Savings.

3. Nothing in this Act or in any rules thereunder shall be deemed to affect—

(a) the pursuit, capture or killing of—

(i) game by any non-commissioned officer or soldier subject to the Army Act or the Indian Articles of War, in accordance with any regulations made in that behalf by the Governor-General in Council, or

(ii) any animal for the destruction of which a reward may be claimed from the Government, or

(iii) any large animal in self defence, or

(iv) any large animal by a cultivator, or person employed by a cultivator, whose crop it is injuring; or

(b) anything done in accordance with any license for the possession of arms and ammunition for the protection of crops or the destruction of dangerous animals granted under the Indian Arms Act, XI of 1878.

## PROHIBITORY PROVISIONS.

**4. No fire arms shall be used or carried for the killing of game except under and in accordance with the conditions of a license granted under this Act or of a license under the Indian Arms Act, XI of 1878, of the nature referred to in section 3 clause (b.)**

**Prohibition of use of fire-arms for killing game except under license.**

**Power to Local Government to prohibit capture or killing of game in certain areas except under license.**

**5. Subject to such exceptions and conditions as it may think fit the local Government may, by notification in the local official Gazette, prohibit within any local area, either throughout the year or during a part thereof, the capture or killing or the attempt to capture or kill—**

**(a) all game or any specified kind of game, or**

**(b) all game or any specified kind of game, by any specified means or in any specified manner**

**either absolutely or except under and in accordance with the terms and conditions of a license granted under this Act.**

**6. (1) The Power to prohibit capture or killing of fish in certain waters.**

**Local Government may, by notifications in the local official Gazette, prohibit the capture or killing of, or the attempt to capture or kill, all fish or any specified kind of fish during any specified part of the year in any specified stream flowing**

through a hilly tract, or in the head-waters of any specified river, or in any specified part of such stream or head-waters.

(2) A notification under this section in regard to any specified stream or head-waters, of any part thereof, shall be conclusive proof of the truth of the matters stated therein.

**7. Subject to such exceptions and conditions as it may think fit, the Local**

**Power to prohibit  
possession or sale  
of game or fish in,  
and importation of  
plumage into, mu-  
nicipal or canton-  
ment area.**

Government may, by notification in the local official Gazette, prohibit, during any specified part of the year, the possession or sale within the limits of any municipality or cantonment of all game or fish or of any specified kind of game or fish which has been recently captured or killed, or the importation into any such limits of the plumage of any specified kind of game.

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### PROVISIONS AS TO LICENSES.

**8. (1) Save as provided in sub-section (2), licenses under this Act shall be  
Grant and cancel-  
lation of licenses,** granted by the authorities empowered by rule made under this Act to grant the same.

(2) Subject to any general or special orders which the Governor-General in Council may, by notification in the Gazette of India, issue in this behalf, the Local Government or any officer not below the rank of a Commissioner or in the Presidency of Madras, a Collector, who has been authorized in this behalf by the Local Government, may grant licenses under this Act authorizing the use or carrying of fire-arms for the killing of game throughout the whole of British India.

(3) Subject to any rules made in this behalf by the Local Government, the Collector, or any authority empowered to grant a license, may cancel any license granted under this Act—

- (a) when the holder or any of the holders has been convicted of an offence against the provisions of this Act, or
- (b) when it is shown to his satisfaction that any of the terms or conditions of the license has been infringed.

9. (1) In addition to any terms and conditions which may be prescribed by any rules made by the Local Government under this Act,  
 Terms and condi- tions of licenses. every license granted under this Act shall be deemed to be granted subject to the terms and conditions set forth in any notification for the time being in force under section 5.

(2) Every such license shall specify—

- (a) the area within which it is to be in force;

- (b) the instruments which may be used under it, and, in the case of a weapon to which the provisions of the Indian Arms Act, XI of 1878, apply, the person or persons by whom alone such weapon may be used or carried ; and
- (c) when the license is to be so restricted the specified kinds of game, the periods, and the methods of capture or killing to which alone it is to apply.

(3) Where any such license authorizes the use of fire-arms, the license may limit the number of head of any specified kind of large animal which the holder may kill, and may fix a fee to be paid in respect of each such head actually killed by him.

(4) Every hunter, beater and other assistant aiding the holder of a license granted under this Act in the pursuit, capture or killing of game in accordance with the terms and conditions of such license shall, while so aiding, be protected by such license.

10. Every license granted under this Act shall be non-transferable, and Period of, and shall be granted, and may from time to time be renewed, for fees for licenses. any period not exceeding one year, and a fee of twenty rupees shall be payable on the issue, and also on each renewal, thereof :

Provided, firstly, that the Governor-General in Council may, by notification in the Gazette of India, require that a higher fee shall be payable, and that security shall be deposited, on the issue or renewal of any specified class of license or on the issue or renewal of licenses to any specified class of persons :

Provided, secondly, that a fee of five rupees only shall be payable on the issue or renewal of a license to an owner of agricultural land to be in force exclusively within the village or villages in which such land is situate and within a local area which, if it includes more than one village, does not exceed fifteen hundred acres ; and

Provided, thirdly, that the Local Government may exempt any specified class of persons in any local area from the payment of fees on the issue or renewal of licenses which do not authorize the use of fire-arms.

**Duty of license-holders to produce and deliver up licenses.**      11. Every holder of a license granted under this Act shall be bound to—

- (a) produce such license for inspection at any time on being required to do so by any Magistrate, or by any Police-officer not below the rank of Inspector or within a forest by any Forest-officer not below the rank of Extra Assistant Conservator ; and

- (b) upon the expiry of the period for which his license was granted or upon leaving India, whichever is sooner, deliver up such license to the Collector or to any authority empowered to grant a license or to the principal Police-officer in the district or Presidency-town in which he then is.

Duty of certain  
license-holders to  
keep account of  
game killed.

12. Every holder of a license granted under this Act, limiting the number of head of any specified kind of large animal which the holder may kill, shall—

- (a) keep an account of all such head actually killed by him, showing the sex of each and the date upon and place at which it was killed.
- (b) produce such account on being required to do so by any Magistrate, or by any Police-officer not below the rank of Inspector, or within a forest by any Forest-officer not below the rank of Extra Assistant Conservator ; and
- (c) upon the expiry of the period for which his license was granted, or upon leaving India, whichever is sooner, deliver up such account, together with his license, to the principal Police-officer in the district or Presidency-town in which he then is.

13. (1) Notwithstanding anything to the contrary in the Indian Arms Act XI of 1878, or the rules made thereunder, a person holding a

Exemption of licenses under this Act from obligation under Act XI of 1878, and effect of license under Forest enactments.

license under this Act, authorizing him to use or carry, for the capture or killing of game, a weapon to which the Indian Arms Act, XI of 1878, applies when used or carried by such person shall be exempt from the obligation to take out a license of a like nature for the same local area and weapon under that Act.

(2) Every license granted under the provisions of any enactment relating to forests for the time being in force, which permits any person to capture or kill game, shall have the effect of a like license granted under this Act.

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#### PENAL PROVISIONS.

14. Whoever uses or carries any fire-arm for the killing of game in

Penalty for using or carrying fire-arm in contravention of section 4.

contravention of the provisions of section 4 shall be punishable with fine which may extend to one thousand rupees, and the fire-arm may on the order of the convicting Court, be confiscated.

15. (1) Whoever captures or kills, or attempts to capture or kill, any game or fish in contravention of this Act, or of any rule or notification made or issued thereunder, or of the terms and conditions of any license granted thereunder, shall be punishable—

Penalty for illegal capture or killing of game or fish.

- (a) on the first conviction, with fine which may extend—
  - (i) to one hundred rupees, or
  - (ii) to twenty rupees in respect of each large animal, and five rupees in respect of each other animal, in respect of which the offence was committed ;  
as the Magistrate or Court may think fit ;
- (b) on the second conviction, with imprisonment for a term which may extend to one month, and fine which may extend to double the amounts aforesaid ; and
- (c) on the third or any subsequent conviction, with imprisonment for a term which may extend to three months, and fine which may extend to treble the amounts aforesaid.

(2) The Court convicting any person under sub-section (1) shall order the confiscation of the animals (if they or any parts of them are before it) in respect

of which the offence was committed, and the instruments and dogs, or other animals (if any) with which the offence was committed, and shall send them to the Collector:

Provided that the Collector may, if he thinks fit, by an order in writing recorded with the reasons therefor, direct the release from confiscation of any such animals, instruments, dogs or other animals so sent to him.

Penalty for failure to keep prescribed account of game killed.      16. Whoever, being the holder of a license granted under this Act, limiting the number of head of any specified kind of large animal which the holder may kill—

- (a) fails without reasonable excuse (the burden of proving which shall be upon him) to keep the account prescribed by section 12, or makes any false entry therein, or, for the space of forty-eight hours, omits to make the required entry therein, or
- (b) kills more head of any specified kind of large animal than is permitted by his license,

shall be punishable with fine which may extend to five hundred rupees in respect of every head regarding which he so failed or made a false entry or omitted to make such entry as aforesaid or killed in excess of the number so permitted.

17. (1) Whoever is in possession of, or offers for sale any game or fish,

**Penalty for illegal possession or sale of game or fish or importation of plumage.** or imports any plumage; in contravention of the provisions of section 7, shall be punishable on the first conviction, with fine which may extend to five rupees, and on a second or subsequent conviction, with fine which may extend to ten rupees, in respect of every animal or any plumage so possessed, offered for sale or imported.

(2) The Court convicting any person under sub-section (1) may in its discretion confiscate the animals (if they or any parts of them are before it) and shall confiscate the plumage.

**Presumption of commission of certain offences.**

18. (1) Where any person is found in possession—

(a) of any game recently captured or killed in any area within a period during which its capture or killing is absolutely prohibited within such area by a notification under section 5, or

(b) of any fish in the vicinity of any stream or the head-waters of any river within a period during which its capture or killing is absolutely prohibited in such stream or head-waters by a notification under section 6;

the Court may presume that he has committed an offence punishable under section 15, sub-section (1.)

(2) Where any person is found carrying any game or fish recently captured or killed, together with any fire-arms or instruments with which such game or fish might have been so captured or killed, the Court may presume that he has captured or killed such game or fish with such fire-arms or instruments as aforesaid.

19. When the holder of a license granted under this Act has been convicted of an offence thereunder, the convicting Court shall send a copy of its judgment, together with the license (if before the Court), to the Collector or to the nearest authority empowered to cancel the license under this Act with a view to the cancellation of such license, by the Collector or such authority, as the case may be.

20. Where any person commits an offence against the provisions of this Act in the presence of a Magistrate or Police-officer or, within a forest of a Forest-officer, or of any other person authorized in this behalf by the Local Government, such Magistrate, officer or person may seize any arms or other instruments or any dogs or other animal used in the commission of such offence, and shall send them without unnecessary delay, together with a report

Power of seizure  
when offence Com-  
mitted in presence  
of certain officers  
and persons.

of the circumstances, to a Magistrate competent to take cognizance of the alleged offence upon information so received.

21. (1) Where any person is found carrying arms or other instruments

**Power of seizure  
in case of reasonable suspicion,** in such circumstances as to afford reasonable ground or the suspicion that he is carrying the same with intent to use them, or that they may be used in contravention of any of the provisions of this Act, S. 12, (Cf. Indian Arms) or any rule made

or notification or license issued thereunder, any Magistrate, or Police-officer or, within a forest, any Forest-officer, or any other person authorized in this behalf by the Local Government may seize the arms or instrument, and shall send them without unnecessary delay to the Collector.

(2) The Collector to whom any arms or other instruments are sent under sub-section (1) shall summon the owner if known ; and, if the owner appears and claims them at any time within one year from the date on which they were received in the office of the Collector, the Collector shall hear him, and may, if satisfied, after such enquiry as he thinks fit, that there was any such intention as aforesaid, cancel the license (if any) of the owner.

(3) Any arms or other instruments sent to the Collector under sub-section (1) shall, if the owner does not appear and claim them within the period fixed by sub-section (2), or if their possession without a license was

illegal and the owner fails to produce the necessary license or such license is cancelled as aforesaid, be confiscated.

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### RULES.

22. (1) The Local Government may, by notification in the local official Gazette, make rules to carry out the purposes and objects of Rules. this Act.

(2) In particular and without prejudice to the generality of the foregoing power, such rules may--

(a) declare the authority by which licenses may be granted or cancelled under this Act;

(b) prescribe the terms and conditions subject to which such licenses are to be granted; and

(c) provide for appeals from orders made under this Act otherwise than by a Magistrate or Court.

(3) Such rules may be either of general application or applicable only in specified local areas or to specified classes of persons, and shall, when so published as aforesaid, have effect as if enacted in this Act.

## REPEAL.

Repeal.

23. The Wild Birds Protection Act, XX of 1887, is hereby repealed.

## ASSAM.

*The 16th March 1905.*

No. 1051 R.—Under the provisions of Sections 72 and 24 (c) of the Assam Forest Regulation, VII of 1891, and in supersession of the Rules published under Notification No. 607 R., dated the 22nd February 1895, as amended by Notification No. 4687 R., dated the 29th November 1895, the Chief Commissioner is pleased to make the following Rules for the regulation of sport in reserved forests :—

## RULES FOR THE REGULATION OF SPORT IN RESERVED FORESTS.

1. The killing of fish by dynamiting or poisoning is absolutely prohibited.
2. The following close seasons are prescribed :—

Female rhinoceros and buffalo when

accompanying by young	...	Whole year.
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Female bison ( <i>mithun</i> )	...	Whole year.
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All deer	...	1st May to 31st October.
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Hornless male deer or deer with horns in velvet and females of all deer ...	Whole year.
Green pigeon ( <i>osmotreron</i> , <i>treron</i> , <i>sphen-</i> <i>ocercus</i> , and <i>chalcophaps</i> ) ...	
Imperial pigeon ( <i>ducula</i> , <i>carpophaga</i> ), doves ( <i>turtur</i> , <i>aenopopelia</i> ) ...	
Jungle fowl ... ... ...	1st April to 31st October.
Pheasants ... ... ...	1st April to 1st September.
Partridge and peafowl ... ... ...	
Florican ... ... ...	1st April to 1st November.
Resident duck and teal ... ... ...	1st June to 1st October.

The killing or snaring of any of the above within the close season prescribed in each case is prohibited.

3. Hunting, shooting, trapping or fishing within a reserved forest is prohibited except by a permit-holder and subject to the provisions of Rules 1 and 2. In the case of reserves which are not closed under Rules 4 and 5 this permit will be granted by the Deputy Commissioner of the district or by the Divisional Forest Officer in Form A on payment of a fee of Rs. 10. Rules 1 and 2 will be endorsed on the permit.

4. The Conservator of Forests may close absolutely to hunting, shooting, trapping or fishing any reserved forest or portion thereof where the extinction of any species is feared or where it may appear necessary either to form a sanctuary for game or for other reasons. In such closed forests, hunting, shooting, trapping or fishing is altogether prohibited.

5. The Conservator of Forests may within any reserved forest or portion thereof restrict hunting, shooting, trapping or fishing to the holders of a special permit in Form B. appended. Permits in this form may be granted by the Conservator of Forests, the Deputy Commissioner of the district or the Divisional Forest Officer. Within reserved forests to which this rule is applied, hunting, shooting, trapping or fishing without special permit is prohibited.

6. A list of the forests closed under Rules 4 and 5 shall ordinarily be prepared and be published in the *Assam Gazette* on or in the first issue after the 1st October in every year and a copy be hung up for public information in the offices of the Deputy Commissioners and the Divisional Forest Officer of the different districts.

7. Permits under Rule 5 will not ordinarily be granted between 1st January and 30th June in reserved forests, except to approved sportsmen and shikaries, for the exclusive purpose of hunting and killing carnivorous animals and such other animals as may be expressly mentioned in the permit. These

permits shall be (a) non-transferable, (b) available for the period specified thereon not exceeding two months, (c) apply to a portion or the whole of any one reserve : provided that, if for a portion only and game is not found in that portion, the permit may be made available, within the period for which it is issued, to another portion of the same forest, and provided also that wounded game may be followed into another portion of a reserve than that to which the permit applies.

8. A scale of fees as under will be charged for special permits issued under Rule 5 : —

To non-residents of Assam	...	...	...	50
Residents of Assam outside the district in which the forests are situated	...	...	...	30
Residents of the district	...	...	...	20

Gazetted Forest Officers, Officer of the Assam Commission, and Gazetted Officers of the Assam Police, having to discharge duties under the Forest Regulation, are exempted from taking out permits, but will be bound by Rules 1 and 2 and by any orders issued under Rules 11 and 12.

9. At the time the permit is taken out, a declaration must be made by the permit-holder as to the animals, other than carnivorous, he desires to hunt.

10. In addition to the permit fee, the following charges will be made for animals, hereinafter mentioned, killed by the permit-holder :—

		For the first animal killed.	For a second or every subsequent animal killed under the same license.
Rhinoceros	...	... Rs. 50	Rs. 100
Buffalo	...	... „ 10	„ 20
Mithun	...	... „ 5	„ 10

provided that by order of the Local Government these fees may be reduced if for any cause game is plentiful or causes injury to any crops in the vicinity of the reserve.

11. If the permit fixes a limit to the number of animals to be killed, a permit-holder shall be bound by such limit.

12. The Conservator of Forests may make rules to prevent the killing of immature animals other than carnivorous animals, and a permit-holder shall be bound by such rules.

13. A breach of these rules will be punishable under section 24 of the Assam Forest Regulation (VII of 1891).

No wild elephant shall be hunted, shot at, killed, injured or captured. The setting of traps or snares is prohibited.

Breach of any of the conditions of this license will render the license liable to forfeiture, in addition to any punishment to which the holder thereof may be liable under the law

The permit-holder shall observe any orders issued under Rules 11 and 12 limiting the number of animals to be shot or prohibiting the killing of immature animals.

The holder of a permit shall camp only on such regular camping grounds as may have been set apart by the Forest authorities, or in places specially pointed out to him by a Forest Officer.

A permit may be cancelled at any time by order of the officer granting it or by the Conservator of the Forests of the Circle. Any breach of the Forest Regulation, or of any rule made under that Regulation, if committed by the holder of the permit, or any of his retainers or followers, shall render the permit liable to cancellation. Permits are liable to be declared invalid in regard to any particular forest in case of fire breaking out in any part of that forest.

The holder of a permit is not exempted from liability under the Forest Regulation, or any other law, for anything done in contravention of such Regulation or law or for any damage caused by him, his retainers or followers.

Permit-holders may not enter any forests without previously giving twenty-four hours' notice to the local forest official.

Every permit-holder must pay for a forest guard, to accompany him and his camp during the time he is within Government forest limits, whose sole duty it will be to see that none of the Forest Rules are infringed by the permit-holder or his followers.

F. J. MONAHAN,

*Secretary to the Chief Commissioner of Assam.*

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## BENGAL.

### NOTIFICATION.

No. 1992 For—The 6th April 1907.—In supersession of the rules prescribed

No. 450 For, dated  
27th January 1896.

No. 843T.—R.,  
dated 13th October  
1899.

No. 90T.—R., dat-  
ed 4th January  
1902.

by Notification No. 177 T.—R., dated the 18th May 1895,  
as amended by subsequent notifications, of which the  
numbers and dates are noted in the margin, the Lieutenant-  
Governor of Bengal is pleased, in exercise of the powers  
conferred by clause (i) of section 25 of the Indian Forest Act,  
1878 (VII of 1878), as amended by the Forest Act, 1890 ( V  
of 1890), to prescribe the following rules to regulate

hunting, shooting, fishing, the poisoning of water and the setting of traps or snares within the Reserved Forests in Bengal :—

### RULES TO REGULATE HUNTING, SHOOTING AND FISHING WITHIN THE RESERVED FORESTS IN BENGAL.

Prohibition as to killing of fish. I.—No person shall, within the Reserved Forests in Bengal,—

- (a) poison any river or other water ;
- (b) kill fish by any explosive ;
- (c) dam and bale water, or
- (d) use small nets to catch fish.

Close Season II —The following close seasons shall be observed within the said forests :—

Rhinoceros, buffalo and female bison	...	...	... Whole year.
All stags with horns not in velvet and male antelopes	...	...	.... 1st May to 31st Oct.
Hornless male deer or deer when with horns in velvet and females of all deer and antelopes	...	...	... Whole year.

Green and imperial pigeon ...	...	... 1st April to 15th June.
Jungle fowl ...	...	... 1st April to 31st Oct.
Pheasants, florican, partridges and peafowl		... 1st April to 30th Sept.
Hare ...	...	... 1st May to 30th Sept.

The killing or snaring of any of the above within the close season prescribed in each case is prohibited.

**Classification of III.**—For the purposes of these rules, forests shall be divided into three classes, namely :—

**Class I.**—Forests in which hunting, shooting, trapping or fishing is permissible only under a permit in Form A appended.

**Class II.**—Forests in which hunting, shooting, trapping, or fishing is permissible only under a permit in Form B appended.

**Class III.**—Forests in which all hunting, shooting, trapping or fishing is prohibited in order to prevent the extinction of any species, or to form a sanctuary for game, or for any other reason.

All Reserved Forests shall be considered as belonging to class I unless the contrary is specially notified by the Local Government in the *Calcutta Gazette* at the instance of the Commissioner of the Division or the Conservator of Forests through the Commissioner of the Division.

**Permits in case of Reserves falling under class I fees therefor.**

IV.—In the case of Reserves falling under class I the necessary permit may be granted by the District Officer or by the Divisional Forest Officer in Form A, appended, on payment of a fee of Rs. 10, for the period between the date on which the permit is granted and the 30th June following the date of its issue, and shall be non-transferable. But except in the Sunderbans Forest Division, no permit in Form A shall be held to authorize hunting, shooting, trapping or fishing in any Reserved Forest between the 1st February and the 1st July without the express permission of the authority granting the permit. Whenever such permission is given the fact shall be endorsed on the permit.

**Permits in case of Reserves falling under class II.**

V.—In the case of Reserves falling under class II the requisite permit may be granted by the Conservator of Forests, the District Officer, or the Divisional Forest Officer.

**Conditions and limitations of such permits.**

VI.—Permits under Rule V shall not ordinarily be granted in Reserved Forests, except to approved sportsmen and shikaries for the exclusive purpose of hunting and killing carnivorous animals and such other animals as may be expressly mentioned in the permit. These permits shall be (a) non-transferable, (b) available for the period specified thereon not exceeding two months, and (c) may

apply to a portion or the whole of any one reserve : Provided that wounded game may be followed into another portion of a reserve than that to which the permit applies.

**VII.—**The holder of a permit in Form A, to hunt, shoot, trap or fish in forests of class I of any Forest Division may be allowed by the Conservator of Forests to shoot carnivorous animals, barking deer, hare or winged game, or to fish in any or all of the forests of class II included in the same Division, during the currency of his permit in Form A without extra charge.

**VIII.—**Gazetted Forest Officers, Officers of the Imperial and Provincial Civil Services and Gazetted Officers of the Bengal Police, having to discharge duties under the Forest Act or Rules may thereunder within the district or sub-division of the district in which the Reserved Forest concerned is situated, and Heads of Departments shall be exempted from taking out permits, but shall be bound by Rules I and II and by any orders issued under Rule XIV.

**Exemption in case  
of tidal waters.**

**IX.—**No permit shall be required for fishing in tidal waters.

**Extension of per-  
mit for class I  
forests to forests  
of class II.**

**Exemption of cer-  
tain officers when  
on duty and Heads  
of Departments.**

Fees for special  
permits.

X.—Fees shall be charged for special permits issued under Rule V according to the following scale :—

To non-residents of Bengal	...	...	...	...	Rs. 50
Residents of Bengal outside the district in which the forests are situated	...	...	...	...	„ „ 30
Residents of the district	...	...	...	...	„ „ 20

Provided that every holder of a special permit shall also pay for a Forest Guard to accompany him and his camp during the time he is within any Reserved Forest specified in his permit, if the Divisional Forest Officer appoints a Forest Guard to accompany him.

XI.—In addition to the permit fee, where a permit fee is required, there shall be a charge of Rs. 10 for the first bison killed and a charge of Rs. 20 for each subsequent one killed under the same permit.

Charges for kil-  
ling of bison.  
Prohibition of  
search for game  
prior to date of  
permit.

Prior declara-  
tion as to game  
sought after.

XII.—No person who applies for a permit, whether under Form A or Form B, shall employ any one to search for game in a Reserved Forest prior to the date of his permit.

XIII.—At the time a permit in Form B is taken out a declaration shall be made by the permit-holder as to the animals, other than carnivorous, which he desires to hunt.

Power of Conservator to make rules as to number of animals to be killed, and to protect immature animals.

XIV.—The Conservator of Forests may, with the concurrence of the Commissioner of the Division in which the forest is situated, make rules with regard to forests coming under class II :—

- (a) fixing the maximum number of animals, other than carnivorous animals, of any kind to be killed in any Reserved Forest, and by any permit-holder or party of permit-holders during any forest year (1st July to 30th June); and fixing the number of permits to be granted in a forest under this class in any year;
- (b) to prevent the killing or capture of immature animals other than carnivorous animals; and every permit-holder or officer coming under Rule VIII shall be bound by such rules.

XV.—When an application for a permit in Forms A and B is refused, or where Appeals against the officers having concurrent authority to issue such permits refusal of permit. disagree, an appeal shall lie to the Commissioner of the Division.

XVI.—A permit in Form C may be issued free of charge by the Sub-Permit to shoot divisional or District Officer or by the Divisional Forest dangerous animals. Officer authorizing the holder to hunt, shoot or trap any specified carnivorous or other animal considered dangerous to life. The permit

shall be (a) non-transferable and (b) available for the period specified thereon not exceeding three months.

XVII.—Every person to whom a permit has been granted under these Production of rules, and who is found hunting, shooting, trapping or fishing permits on demand, in any forest to which these rules apply, shall, on the demand of any Magistrate, Forest Officer, or Police Officer, having jurisdiction in the locality, produce his permit.

XVIII.—(1) Any permit granted under these rules for shooting in a forest Cancellation of may be cancelled at any time by the Conservator of Forests permits. with the concurrence of the Commissioner of the Division in which the forest is situated, if circumstances render it advisable to stop shooting in that forest, a proportionate return of the fee paid by the permit-holder being made to him.

(2) If any person to whom a permit has been granted under these rules commits a breach of any provision of the Forest Law, or of any of these rules, the permit shall be cancelled in lieu of or in addition to any other punishment to which such person may be liable under the Indian Forest Act, 1878, or under any other law for the time being in force.

Saving as to Ele-  
phants.

XIX.—These rules shall be subject to the provisions of the Elephants' Preservation Act, 1879 (VI of 1879.)

## FORM A.

## PERMIT TO BE GRANTED UNDER RULE IV.

[ *Obverse.* ]*License to hunt, shoot or fish within a Reserved Forest—Fee Rs. 10.*

Permit to hunt, shoot or fish within the——Reserved Forest of the——Division between the date of the permit and the 30th June 19 , granted under Rule IV of the Rules issued under notification No. , dated the subject to the conditions specified on the reverse.

- (a) To
- (b) Of
- (c) Status

The holder of this permit is permitted to hunt, shoot and fish in the forest mentioned in the license between the 1st February and the 30th June.

NOTE.—Other details may be added for the purpose of identification at the discretion of the officer granting this permit.

*day of 19 .*

*Signature of Officer granting the permit.*

[ *Reverse.* ]

1. The poisoning of rivers or other waters, the killing of fish by any explosive, the damming and baling of water, and the use of small nets to catch fish are prohibited.

2. The following close seasons are prescribed :—

Rhinoceros, buffalo and female bison	...	Whole year.
All stags with horns not in velvet and male antelopes	...	... 1st May to 31st October.
Hornless male deer or deer when with horns in velvet and females of all deer and antelopes	...	... Whole year.
Green and imperial pigeon	...	... 1st April to 15th June.
Jungle fowl	...	... 1st April to 31st Oct.
Pheasants, florican, partridge and pea-fowl	...	... 1st April to 30th Sept.
Hare	...	... 1st April to 30th ,

The killing or snaring of any of the above within the close season prescribed in each case is prohibited.

3. No wild elephant shall be hunted, shot at, killed, injured or captured.
4. The setting of traps or snares is prohibited.
5. This permit does not authorise hunting, shooting or fishing in any Reserved Forest, or in any part of any Reserved Forest, which has been notified in the *Calcutta Gazette* as belonging to Class II or Class III of Rule III of Notification No. , dated  
nor, unless it only applies to the Sundarbans Division, shall it be held to authorise hunting, shooting or fishing in any Reserved Forest between the 1st February and 1st July, unless the certificate showing that the holder has received special permission to hunt, shoot or fish between those dates has been countersigned by the Officer granting the permit.

Breach of any of the conditions of this license will render the license liable to forfeiture, in addition to any punishment to which the holder thereof may be liable under the law.

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## FORM B.

## PERMIT GRANTED UNDER RULE V.

[Obverse]

COUNTERFOIL.	DUPLICATE,	TRIPPLICATE.
<p>No. , dated 19 .</p> <p>Name of permit-holder— Residence— Status—</p> <p>NOTE.—This is to be kept in the office containing all necessary details found in the Triplicate.</p>	<p>Note.—This is to contain all necessary information given in triplicate.</p>	<p>Shooting permit granted subject to the Rules on the reverse.</p> <p>No. , dated 19 .</p> <p>Name of permit-holder— Residence— Status— Fee paid for permit— Period for which valid— From 19 to 19 .</p> <p>Name of forest or portion thereof for which permit is granted with boundaries thereof.</p>

[Reverse.]

The maximum number of certain animals other than carnivorous animals that may be shot under this license is :—

KIND OF ANIMAL.	Maximum number to be shot.	Fee to be paid for each animal shot, in addition to the permit fee, under Rule XI

Name of Forest Guard accompanying the party with rate of pay—

Name—

Pay—Rs.              per mensem.

## 1. The permit-holder shall observe the following close seasons :—

Rhinoceros, buffalo and female bison	...	Whole year.
All stags with horns not in velvet and male antelopes	...	... 1st May to 31st October.
Hornless male deer or deer when with horns in velvet and Females of all deer and antelopes.	...	... Whole year.
Green and imperial pigeon	...	.... 1st April to 15th June.
Jungle fowl	...	... 1st April to 31st October.
Pheasants, florican, partridge and peafowl	...	... 1st April to 30th September.
Hare	...	... 1st May to 30th September.

The killing or snaring of any of the above within the close season prescribed in each case is prohibited.

2. The permit-holder shall observe any orders issued under rule XIV limiting the number of animals to be shot or prohibiting the killing of immature animals.

3. The holder of a permit shall camp only on such regular camping-grounds as may have been set apart by the Forest authorities, or in places specially pointed out to him by a Forest Officer.

4. This permit can be cancelled under Rule XVIII of the Shooting Rules.

5. The holder of a permit is not exempted from liability under the Forest Act, or any other law, or for anything done in contravention of such Act or law, or for any damage caused by him, his retainers or followers.

6. Every permit-holder must, if so ordered by the Forest Officer, pay for a Forest guard to accompany him and his camp during the time he is within Government forest limits, whose sole duty it will be to see that none of the Forest Rules are infringed by the permit-holder or his followers.

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## FORM C.

## SHOOTING PERMIT.

[Obverse.]

*Under Rule VI of Notification No. dated*

Name of permit-holder—

Residence—

Status—

Period for which valid—

Name of Forest or portion thereof for which the permit is granted, with boundaries thereof.

Description of carnivorous or other animal dangerous to life which the permit-holder is permitted to hunt, shoot or trap.

Dated 19 .

Signature of Issuing Officer.

[Reverse.]

1. This permit is non-transferable, available only for the period specified, not exceeding three months, and only authorises the hunting, shooting or trapping of the animal or animals described therein.
2. The holder of this permit shall camp only on such regular camping-grounds as may have been set apart by the Forest authorities or in places specially pointed out to him by a Forest Officer.
3. The holder of this permit is not exempted from liability under the Forest Act or any other law for anything done in contravention of such Act or law or for any damage caused by him, his retainers or followers.

R. W. CARLYLE,

*Chief Secy. to the Govt. of Bengal.*

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### BOMBAY.

Certain regulations having lately been made by the Government of Bombay with a view to the preservation of game in the forests of the Presidency (vide Government Notification No. 5627, dated 18th August 1903,

Revenue Department) the rules relating to the Civil District of Poona are hereby published for general information:—

1. In all Reserved and Protected Forests the following acts are *absolutely prohibited*:—(a) the poisoning of rivers or other water, and the explosion of dynamite therein for the purpose of killing or catching fish ; (b) the setting of spring guns ; (c) the taking, wounding or killing of big game, other than tiger, panther, wolf, hyena, wild dog, pig or bear, over water or salt-licks ; (d) wounding or killing the females of deer, antelope or bison ; (e) wounding or killing any game birds, antelope or hares during the close season fixed in the Appendix.

2. The setting of snares or traps is prohibited in all reserved and protected forests except with the written permission of the Divisional Forest Officer.

3. (a) Hunting and shooting of any kind are prohibited except under a license to be obtained from the Conservator of Forests, Poona, in the under-mentioned forests lying in the Western portion of the Poona District.

#### LIST OF CLOSED FORESTS.

1. Mawal and Mulshi Ranges.—All Reserved Forests. II. Khed, Ambegaon and Junner Ranges.—All Reserved Forests lying to the West of the Poona-Sangamner-Nasik Road. III. Haveli Range.—All Reserved Forests lying to the

West of the Nasik-Poona-Satara main road. IV. Purandhar Range.—All Reserved Forests lying to the West of the road commencing at the Diwa Ghat running south to Saswad, and thence bounded by the Local Funds Road going south to Pimhla and out of the District at Tandla. (b) Every license issued under clause (a) of this rule shall permit the holder only to hunt and shoot, and shall be valid for a period of one year from the date of its grant in any Reserved or Protected Forest in the Presidency to which these rules are made applicable under clause (a), subject to the condition that before it has effect in any Forest Division in which the licensee does not reside or exercise any jurisdiction, it must be countersigned by the Divisional Forest Officer. (c) No such license shall entitle the holder to hunt or shoot more than two stags or bulls of each species of animal to be specified in the license according to a list to be prepared for each Forest Division by the Conservator of Forests.

4. Wounded game may be pursued into the Forests of the Division adjoining that for which the license is valid or into a forest closed under Rule 7.

5. A license granted under these rules shall not be transferable.

6. Every person to whom a license has been granted under these rules, and who is found hunting, shooting, snaring or trapping in any forest to which these rules apply, shall, on demand by any Forest, Police or Revenue Officer, produce his license.

7. In the forests specified in rules 3 above, the taking, wounding, or killing of the following animals is, owing to their scarcity, for the present absolutely prohibited :—

1. Sambar	...	...	...	... (Ver: Sambar)
2. Spotted deer	...	...	...	... (Ver: Chital)
3. Barking deer	...	...	...	... (Ver: Bhekar)
4. Hog deer	...	...	...	... (Ver: Para)
5. Bison	...	...	...	... (Ver: Gaur)
6. Nilgai	...	...	...	... (Ver: Nilgai)

8. If any person to whom permission under Rule 2 or a license under Rule 3 has been granted commits a breach of any provision of the Indian Forest Act, 1878 (VII of 1878) as amended by the Forest Act, 1890 (V of 1890), or of any rules made thereunder, he shall be liable to the penalty of having the permission or license, as the case may be, cancelled by the Divisional Forest Officer, in addition to any other penalty to which he may be liable under the Indian Forest Act, 1878 (VII of 1878), or otherwise. An appeal against the cancellation of the permission or the license by the Divisional Forest Officer shall lie to the Collector, and a second appeal, in case of dismissal of the appeal by the Collector, to the Commissioner, whose decision shall be final.

9. In any case where the Divisional Forest Officer or Conservator thinks it advisable, he may direct that a Forest Guard or other person shall accompany the camp of any license-holder hunting or shooting in forests, with the object of seeing that Forest rules are not infringed by camp followers.

10. The word "hunting" as used in these rules includes tracking for the purpose of discovering the lie of wild animals, provided that any person holding a license is not prohibited from employing any number of trackers.

11. Nothing in these rules shall be taken to exempt any person from liability in respect of any offence by injury to the forest or its produce or of any other offence punishable under the Indian Forests Act, 1878 (VII of 1878) as amended by the Forest Act, 1890 (V of 1890.)

12. Persons applying to the Conservator of Forests, Poona, for a license under rule 3 (a) above, should at the time of application pay a fee of Rs. 25.

13. No license is required for hunting or shooting in forests of the Poona District other than those mentioned in rule 3 (a) above ; but the prohibitions detailed in Rules 1 and 2 above apply to all forests in the District, not only to those mentioned in Rule 3 (a).

14. The above rules apply only to Government forests, not to cultivated or waste lands. Forests in which tree growth is as yet scanty are not always

easily distinguishable from waste lands. The person hunting or shooting on any land will be responsible for ascertaining whether such land is forest or not, and, if it is, for complying with the above regulations thereon.

15. Though Rule 1 (e) is officially applied to forest-land only, yet it is hoped that the regulation prescribing a close time for certain animals (vide Appendix below) will be scrupulously observed by sportsmen in the interests of sport even in the case of land *not* under forest, though in the case of the latter, no penalty attaches to the *violation* of the said regulation.

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#### APPENDIX.

The Game Birds referred to in Rule 1 (e) are as below, and the close season is fixed as follows :—

For				Close season.
Sand-grouse .....	Pterocles fasciatus. Pteroclurus exustus	...	1st April to 30th September.	
Pea-fowl.....	Pavo cristatus	...	...	Do.
Jungle-fowl.....	Gallus sonnerati	...	...	Do.
Spur-fowl.....	Galloperdix spadicea. Galloperdix lunulata	...	...	Do.

For		Close season.
Partridge .....	<i>Francolinus vulgaris. Francolinus pictus.</i> <i>Ortygornis or Francolinus pondicerianus</i>	1st April to 30th September.
Rain-quail.. .....	<i>Coturnix coromandelica</i> ... ...	Do.
Bush-quail.....	<i>Perdicula argoondah or argundah</i> <i>Perdicula asiatica</i> ... ... ...	Do.
	<i>Micropertix erythrorynchus</i> ... ...	Do.
Bustard-quail.....	<i>Turnix pugnax. Turnix gondera, or tanki</i> <i>Turnix dassumieri</i> ... ...	Do.
Bustard.....	<i>Eupodotis edwardsi</i> ... ...	Do.
Lik-florican.....	<i>Sypheotides or sypheetis aurita</i> ...	Do.
Whistling-teal.....	<i>Tendrocygna arcuata or Javanica</i> ...	1st June to 30th September.
Cotton-teal.....	<i>Nettopus coromandelianus</i> ... ...	Do.
Comb-duck .....	<i>Sarcidiornis melanopterus</i> ... ...	Do.
Spot-bill-duck. ....	<i>Anas poecilorhyncha</i> ... ...	Do.

*The Close season for Indian Antelope and Chinkara is from the 1st June to the 31st October.*

*The close season for Hare is 1st April to 30th September.*

POONA,  
22nd June 1905.

L. C. SWIFTE,  
Ag. Collector and District Magistrate,  
POONA.

## BURMA.

## A.—HUNTING, SHOOTING AND FISHING (SECTION 26, CLAUSE H).

2. (1) No person shall enter a Reserved Forest in search of game or, in such

~~Prohibition of hunting, shooting and fishing in Reserved Forests except under a license.~~ forest, hunt, shoot, fish or set traps or snares, except under and in accordance with the conditions of a license in his name and in his possession issued by the Divisional Forest-officer.

Such Officers shall not issue licenses to shoot except—

(a) to persons exempt from the provisions of the Indian Arms Act, 1878 (XI of 1878); or

(b) with the approval of the Deputy Commissioner, to other persons holding licenses to possess fire-arms under that Act.

(2) § The license shall be in Form I and shall bear the signature of the licensee. It may be granted for any period not exceeding one year and shall extend to all reserved forests within the Forest Division for which it is issued, except such forests or parts of forests as the Conservator with the previous sanction of the Local Government may have declared by notification to be closed to the issue of licenses. The license shall be issued subject to the provisions of Rules 3, 4 and 5. A license may be countersigned without extra fee by any

other Divisional Forest Officer for the Reserved Forests in his division and by the Conservator for the Reserved Forests in all or any of the divisions in his circle.

A fee of ten rupees shall be charged for the issue thereof; provided that such lower fee as the Divisional Forest Officer considers suitable may be charged for a license to fish or to set traps or snares.

**Ordinary close seasons for animals and birds.**

3. No person shall hunt, shoot, trap or snare in a reserved forest any animal\* or bird of any of the following kinds during the close seasons specified therefor, respectively, namely :—

Females of buffalo ...	... } The whole year.	Males of all deer except barking-deer, 15th June to 15th October.
Females of bison ...	... }	Hares ... }
Females of <i>sing</i> ...	... }	Pea-fowl ... }
Females of <i>sambhur</i> ...	... }	Pheasants ... }
Females of hog-deer ...	... }	Quail ... }
Females of <i>Thamin</i> ...	... }	Jungle-fowl ... }
Females of wild goat ...	... }	Partridges ... }
Females of rhinoceros ...		
Males of all deer (except barking-deer) if hornless or with horns in velvet ...		

\* For provision protecting elephants, see the Elephants Preservation Act, 1879 (V. of 1879). This Act applies to the whole of Burma not including the Shan States. See General Department Notification Nos. 193 and 177, dated respectively 18th September 1891 and 28th July 1902.

Provided that, with the approval of the Commissioner of the Division, the Conservator of the Circle may by Public Notice withdraw any or all of the above prohibitions for specified Reserved Forests between specified dates.

**4. For purposes of trade,** no person shall, at any time, hunt, shoot, snare or trap in a Reserved Forest any of the animals (including barking-deer referred to in Rule 3, or any of the following kinds of birds, namely, owls (except fishing owls) the swallow tribe, night-jars, bee-eaters including rollers), king-fishers, hornbills, wood-peckers, barbets, honey-suckers, creepers, hoopoes, shrikes (including minivets), fly-catchers, thrushes, bulbuls, orioles, red-starts, wag-tails, tits, mainas, gold-finches, rose-finches, trogons, broad-bills, pea-fowl, the heron tribe and terns.

**Prohibition against destruction for purposes of trade of certain birds and animals in a Reserved Forest.**

**5. Within the limits of a Reserved Forest** no person shall erect any dam, weir or fixed trap, or divert any stream for the purpose of catching fish; and no person shall drive any fish or use any net for fishing of which the mesh is less than one inch square.

**Restrictions on the modes of fishing in a Reserved Forest.**

6. Nothing contained in Rule 2 shall be taken to exempt any person Cancellation of from liability in respect of any offence by fire, injury to license, &c., in the forest or its products, or other offence punishable case of fire or under the Act or the rules made thereunder, committed by forest offence. the holder of a license to hunt, shoot, fish or set traps or snares, or by any of his retainers or followers, and the commission of such offence shall also render the license liable to cancellation.

Saving in favour of natives of Shan States. 7. † In the Shan States, Rules 2 to 5 shall not apply to persons who are natives of such States, and in the Chin Hills, Rules, 2 to 5 shall not apply to Chins.

J. WALKER.

Superintendent,

Office of the Conservator of Forests

Pegu Circle.

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† As amended by Revenue Department Notification No. 38, dated 24th January 1905.

## CENTRAL PROVINCES.

*Nagpur, the 5th August 1905.*

No. 5227.—The following rules framed by the Chief Commissioner, under Sections 25 (i) and 75 (d) of Act VII of 1878 (The Indian Forest Act), for the regulation of shooting, etc., in Government Forests in the Central Provinces, are published for general information :—

Notifications No. 319, dated the 17th January 1895, No 2150, dated the 1st June 1899, No. 3395, dated the 22nd June 1900. No. 6571, dated the 4th August 1900, No. 3732, dated the 29th July 1901, and No. 4388, dated the 2nd August 1902, are hereby cancelled.

*Rules relating to shooting, &c., in Government Reserved Forests in the Central Provinces.*

1. The poisoning or dynamiting of rivers, streams or tanks is prohibited.
2. The Conservator of Forests of the Circle shall prepare in October of each year a list of forests which shall be closed to the public generally for hunting, shooting, fishing, netting or setting traps and snares. The list shall specify those forests which are closed :—
  - (a) absolutely, for purposes of forest management or as sanctuaries of the protection of game, other than carnivora;

(b) conditionally, subject to the issue of a permit in accordance with the rules hereinafter following.

The list shall be published in the *Central Provinces Gazette* and a copy shall be hung up for information in the offices of the Deputy Commissioner and Forest Divisional Officer. No permit shall ordinarily be granted for forests under complete systematic fire protection between the 15th February and the 30th June, except to approved sportsmen for the hunting and killing of carnivorous animals and of such other animals as may be expressly mentioned in the permit.

3. As soon as the list is published under Rule 2, the forests of each division shall be divided off into convenient shooting blocks by the Deputy Commissioner and Divisional Forest Officer in consultation, with the approval of the Conservator of the Circle.

4. Permits under Rule 2 shall be of two kinds, *i.e.*, *District* and *Block* Permits, and shall, subject to the control of the Conservator, be issued by the Divisional Forest Officer on behalf of the Deputy Commissioner. The former shall be valid for any forest in the district or division for which they are issued, subject to the conditions of Rule 2 and to the reservation in respect of occupied blocks as set forth in Rule 5. Block permits shall ordinarily be valid for one block only, but may cover two blocks when there are no applicants for the surplus blocks.

Provided that wounded game may be pursued into an adjoining district or block.

5. The following classes of officers, when travelling on duty, are exempted from taking out a permit :—

All Heads of Departments ;

Officers of the Central Provinces Commission ;

Gazetted Forest Officers ;

Gazetted Officers of the Central Provinces Police.

Officers exempted from taking out a permit, as also district permit-holders, may stalk or track in any forest open for shooting, but they shall not tie up, beat or drive in any block for which a block permit has been issued, provided the holder of such permit is himself present in the area covered by his permit. If such exempted officers or district permit-holders wish to reserve entirely any given block for their own sport, they must take out a block permit for the same.

6. Except carnivora only a limited head of game shall be allowed to be killed in any shooting block in any one year. On this limit being reached, the block shall be closed for the remainder of the season as a matter of course. It shall also be within the discretion of the Conservator to prohibit the driving of any animals other than carnivora in any specified block.

7. The Deputy Commissioner and Divisional Forest Officer, subject to the approval of the Conservator, shall fix the limit of game which may be allowed to be killed in each block under the above rule. They shall at the same time, subject to similar approval, fix for each block the number of head of specified game to be shot by any one person under a permit. The number so fixed shall be on a sliding scale based on the duration of the permit, according as it is for fifteen days, one month, or over one month.

The aggregate of game of each species allowed to be killed by any one person, whether holding a permit or not, during the season (1st November to the 31st October) in each Forest Division shall be similarly fixed. Provided that, except with the special permission of the Conservator, the aggregate of game of the following species allowed to be killed by any one person in the forests of the provinces during the year from the 1st November to the 30th October shall not exceed the following :—

- |  |   |
|--|---|
| (1) Two buffaloes.<br>(2) Two bison.<br>(3) Three barasingha.<br>(4) Four cheetal. | (5) Four sambhar.<br>(6) Nilgai. No limit.<br>(7) Eight of any other kinds of deer or antelope. |
|--|---|

8. Every permit shall specify the number of sportsmen who are authorised by it to shoot, and may limit the number of retainers, and of dogs and other animals that may be taken into the forest.

9. The permit shall have entered upon it the number and kind of game which may be killed. As soon as he leaves the shooting block or district, the permit-holder shall return his permit to the Divisional Forest Officer, endorsing upon it the number and kind of game killed.

Officers exempted under Rule 4, or to whom a yearly permit has been given under Rule 11, shall similarly keep the Divisional Forest Officer informed of the number and kind of game killed by them in any shooting block.

10. No application should be made for a block permit more than three months, or less than one month, before the date on which it is desired to make use of it: provided that, in the case of a resident of the district, a notice of fifteen days shall be considered sufficient, and that permits for short periods, not exceeding ten days, may be granted on application.

11. The duration of a permit shall be determined by the demand for shooting blocks. In no case shall it exceed three months. Provided that Gazetted Officers of the District staff, other than those exempted under Rule 5, may be given a permit which may cover the whole year (1st November to 31st October.)

12. Permits are not transferable.
13. The holder of the permit shall not sit up over water or over a salt-lick for the purpose of shooting any animal other than carnivora.
14. The holder of the permit shall camp only on such regular camping-grounds as may have been set apart by the Forest authorities, or in places specially pointed out to him by a Forest Officer.
15. A permit may be cancelled at any time by the officer granting it, or by the Conservator of Forests. Any breach of the Forest Act, or of any rule made under the Act, if committed by the holder of the permit or any of his retainers or followers, shall render the permit liable to cancellation. Permits are liable to be declared invalid in regard to any particular forest in case of fire breaking out in any part of that forest, or in case of unwarrantable interference with forest work.
16. The holder of a permit is not exempted from liability under the Forest Act, or any other law, for anything done in contravention of such Act or law, or for any damage caused by him, his retainers or followers.

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NOTE.—Section 25 of the Forest Act prescribes penalties for breach of these rules And Section 67 of the Act empowers the Divisional Forest Officer to compound any such breach on payment of a sum of money.

17. Permit-holders may not enter any forest without previously giving 24 hours' notice to the local forest official.

18. Every permit-holder must pay for a forest guard to accompany him and his camp during the time he is within Government forest limits; whose sole duty it will be to see that none of the Forest rules are infringed by the permit-holder or his followers.

Provided that in exceptional cases in which permit rights are exercised only at irregular intervals and for short periods, the Conservator of Forests or the Deputy Commissioner of the District may exempt permit-holders from this payment.

19. A permit issued under these rules does not authorise the destruction of any kind of bird other than the game and edible birds included in the list and birds of prey. Provided that the shooting or snaring of any kind of bird may be permitted to *bona fide* naturalists for the purpose of scientific collection in limited numbers to be regulated by the Divisional Forest Officer.

20. A close season is fixed for the birds and animals. The destruction of any bird or animal during the close season fixed for such bird or animal is prohibited. Any animal of the species mentioned in Rule 7 shot contrary to the provisions of this rule shall be counted in the permit-holder's aggregate provided for in Rule 7.

21. Nothing in these rules shall prevent the disposal by auction, sale, contract, or otherwise, of the shooting or fishing within any forest or part of a forest, but no such disposal shall be made without the special sanction of the Chief Commissioner previously obtained in each case.

B. ROBERTSON,  
*Chief Secretary to the Chief Commissioner,*  
*Central Provinces.*

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### CHAMBA.

His Highness the Rajah of Chamba, being concerned at the growing scarcity of game in his State, directs that the following rules for shooting be substituted for those previously issued :—

I. No person is allowed to shoot in any part of Chamba State without the permission of His Highness the Rajah, except the villagers who have got licenses and can shoot in their own lands.

II. A charge of twenty-five rupees will be made for each permit granted for shooting. This sum is payable in advance and should accompany the application.

III. The number shot of the following animals will be limited as follows :—

GAME.					NUMBER PERMITTED.
(1) Thar	...	...	...	...	Four.
(2) Gooral	...	...	...	...	Six.
(3) Ibex	...	...	...	...	Four.
(4) Surrow	...	...	...	...	Two.
(5) Brown-bear	...	...	...	...	Three.
(6) Kakar (Barking-deer)				...	Four.

*Note.—There is no limit to the number of leopards and black bears.*

IV. The shooting of the following is strictly prohibited :—

- (1) Red-deer.
- (2) Musk-deer.
- (3) Monal-Pheasant.
- (4) Argus (Tragopan) Pheasant.
- (5) Pea-fowl.

V. The following nullahs are all closed till further notice to permit-holders for shooting :—

- (1) The Kukti Nullahs in Burmor.
- (2) The Mandah Nullahs in Burmor.
- (3) The Tundab Nullahs in Burmor.
- (4) The Mameri Nullahs in Burmor.
- (5) The Barmani Nullahs in Burmor.
- (6) Baluka Mandi Nullahs in Bhandal.
- (7) Gungul Nullahs in Bhandal.
- (8) Sia Babi in Bhandal.
- (9) Sai Ilags.
- (10) Jamuni between Alwas Nullah and Mangli.
- (11)
- (12) Pangi Ilaya.
- (13) The Hull Nullah in Gadijal.
- (14) Simleo in Chun.
- (15) Sarianu Nullah in Dhundi.

- (16) Kala Ban in Dhundi.
- (17) Sukdeal and Bhated in Jundh.
- (18) Jagat Khana in Bhalai.
- (19) Hoil Nullah in Chandra.
- (20) Danta Nullah in Chanja.
- (21) Mukhan Nullah in Beraota.
- (22) The Meejar Nullah in Chamba Lahoul.
- (23) The Jadoo Nullah in Manjir.

VI. No shooting is permitted within eight miles of Chamba Town.

VII. All beating for game is strictly prohibited.

VIII. The shooting of partridges is prohibited from 15th March to 15th September and pheasants are not to be shot from 1st March to 1st October.

IX Application for shooting permits should be made to the Private Secretary to H. H. the Rajah of Chamba. These permits shall not be transferable.

X. All persons taking out a shooting permit must employ a registered shikari.

XI. A list of registered shikaries is kept by the Private Secretary at his office, and application for the list should be made to him.

XII. In order to keep a record of game shot in Chamba, shikaries on engagement will be provided with cards, and sportsmen are requested to fill in the correct number of animals shot.

Countersigned

ALEX. ANDERSON,

*Commr., Lahore Divn.*

(Sd.) BHURI SINGH,

*Mean Sahib,*

*Chamba.*

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### CHITRAL.

The following game laws has been issued for Chitral :—

- (1) Certain districts and *nullahs*, which will be notified from time to time, are reserved for British officials, civil and military, on duty in Chitral.
- (2) In all other districts than those mentioned, shooting is free under whatever arrangements the military may make.
- (3) Persons wishing to shoot big or small game in the reserved tracts and *nullahs* must obtain a license from the Assistant Political Agent for the purpose. The fund so raised will be administered by the Assistant Political Agent for the preservation of game.

(4) Licenses will be of two sorts :—(a) License costing Rs. 30 will permit the holder to shoot the following animals : Markhor, 5 ; ibex, 6 ; oorial, 6 ; panthers, unlimited ; snow leopard, 1 ; bear, black, 1 ; bear, brown, 1. (b) License costing Rs. 15 will permit the holder to shoot the following animals : Markhor, 2 ; ibex, 3 ; oorial, 3 ; panthers, unlimited.

The period embraced by the above licenses will be from the 15th October of one year to the 17th October of the next. License-holders will also be permitted to shoot game birds between the 15th September and the 15th March.

(5) The use of magazine rifles in the reserved *nullahs* is prohibited.

(6) The Chitral *nullah* and the *nullahs* between it and the Awriet *nullah* on the right bank of the Lutko river are reserved for the military.

(7) Except in the above district reserved for the military, driving with men and dogs is prohibited.

(8) The Jingoret *nullah* is considered a sanctuary. No shooting of any kind is allowed in this *nullah*.

(9) The Assistant Political Agent will make proper arrangements every year for the destruction of as many females of game animals as may be desirable in the reserved tracks and *nullahs*.

(10) The distribution of shooting *nullahs* among license-holders may be arranged by themselves in whatever way is most convenient.

## KASHMIR.

The following rules for the preservation of game are published for general information. They apply to European and Native residents and visitors, and also to State subjects and officials :—

1. Driving game with men and dogs in Kashmir, including Gilgit, Ladakh, and Skardu, is prohibited, except in the case of Bears, Leopards and Pigs, driving and beating for which is allowed between 15th May and 15th October, but not at other times of the year. The destruction of all females of the following animals : Barasingha, Ovis ammon, Yak, Shahpoo (Oorial) or Burchel, Markhor, Ibex, Thibetan, Antelope, Thibetan Ravine Deer and Serow, is absolutely prohibited in Kashmir. No musk deer, either male or female, are to be shot or taken.
2. The sale in Kashmir of the horns and skins of any of the animals mentioned in Rule 1, excepting the skins of Bears and Leopards, is prohibited.
3. The breeding season of Pheasants, Chikor, Partridge and other game birds extends from 15th March to 15th September, inclusive, in each year.

During the breeding season as above defined, the shooting of any of the birds above-mentioned, their destruction by nets or in any other fashion, or the taking of their eggs, is absolutely prohibited. During the breeding season no person shall sell in Kashmir any such bird recently killed or taken.

4. During the shooting season, *i.e.*, from 16th September to 14th March, the netting, trapping and ensnaring of the above-mentioned birds is also prohibited.

5. His Highness the Maharaja may, by order in writing, relax any or all of the foregoing rules in favour of any person.

6. Sportsmen wishing to shoot in the lands of the Rajah of Kharmang must first obtain his permission to do so.

7. Licenses to shoot large and small game will be granted as follows :—

I.—A license for which the sum of Rs. 60 will be charged permits the holder to shoot large game in the districts and nullahs which are open for sport, provided he does not kill more than the following numbers of the animals specified :—

Pir-Panjal Markhor	...	...	...	...	1
Astor variety of Markhor	...	...	...	...	2
Ibex	...	...	...	...	6
Ovis Hodgsoni (Ammon)	...	...	...	...	2
Ovis Vignei (Shapoo)	...	...	...	...	4
Ovis Nahura (Burhel)	...	...	...	...	4

Thibetan Antelope	...	...	...	4
Thibetan Gazelle	...	...	...	2
Kashmir Stag	...	...	...	2
Bears, Leopards and Pigs	...	...	...	no limit.

This license to be in force from March 15th to November 15th.

II.—A license of the value of Rs. 20 will be issued to cover the period from November 15th to March 15th. It will permit the holder to kill Tehr, Goral, Serow, Bears, Leopards and Pigs, and in addition two Kashmir Stags and one Pir-Panjal Markhor.

III.—A small game license, for which Rs. 20 will be charged, will be issued to *all* who wish to kill wild-fowl and game birds within the season. No restrictions as to number are made, but it may be hereafter found necessary to curtail the shooting season.

8. The Tehsildari of Kishtwar, including the Wurdwan and Duchin Districts, are under the regulations for the Preservation of Game.

9. Whoever intentionally commits a breach of rules 1, 2, 7, 8 and 9, shall be punished on first conviction by a fine not exceeding Rs. 25, or with imprisonment for a term not exceeding one month, or both, and on second conviction, by a fine not exceeding Rs. 100, or with imprisonment not exceeding four months,

or both, together with forfeiture of the guns or other weapons and dogs of the offender to the State, and if the offender is a shikari with forfeiture of license for one year ; provided, that when the offender is a European or the servant of a European, the case shall be immediately reported to the Resident for disposal in such manner as he may think fit.

10. Subject to the same proviso any person convicted of a breach of Rules 3, 4 and 9 III shall be punished by a fine not exceeding in each case of Rs. 25.

A. C. TALBOT,  
*Resident in Kashmir.*

RAJA SIR AMAR SINGH,  
*Vice-President, State Council.*

#### EXTRACT FROM THE JAMMU AND KASHMIR STATE FISHERIES REGULATION, 1903-04.

1. *Definitions.* REGULATION 3.—In this Regulation, unless there is anything repugnant in the subject or context—

*Water* means and includes all rivers, streams and lakes, all ponds belonging to the State and all tanks constructed by or under authority of the State.

*Reserved Waters* mean and include waters where fishing shall not be permitted except under a special license issued in that behalf, nor shall the capture of fish be allowed by means other than rod and line or casting net which shall not exceed 20 feet in diameter with meshes not smaller than  $1\frac{1}{2}$  inches from knot to knot.

*N. B.*—The ordinary landing net and bait net used by fisherman is permitted to be used, provided that the owner holds a license for rod fishing as laid down under Section 11, A and B.

*Sanctuaries* mean and include waters where fishing, because of the sacred nature of the place or otherwise, shall not be permitted under any circumstances.

*Protected Waters* mean and include waters where fishing shall not be permitted except under a license issued in that behalf in the manner indicated hereafter, nor shall the capture of fish be allowed except by one or other of the recognised modes of fishing.

2. *Reserved Waters.* Under the provisions of this section His Highness the Maharaja in Council is pleased to notify that the following waters shall be deemed to be "Reserved Water," the fee for fishing in which shall be—

(a) by rod and line, Rs. 5;

(b) by casting net as defined above, which includes the right to fish with rod under (a), Rs. 15.

- (1.) The Poonch River from Kotli to and including Junction Pool and the Chukkar at Tangrote in Jammu Territory.
- (2.) The Liddar from 1 mile above the junction of the Liddar and Aro to the junction with the Jhelum.
- (3.) The Sindh from Kangan to 1 mile below Ganderbal, and again from 1 mile above Dub village to the junction with the Jhelum
- (4.) The Pohroo from the junction of the Lolab and Kamil streams at Raikpura to the junction with the Jhelum.
- (5.) The Gulmarg and Ferozepore streams.
- (6.) The Visho from 1 mile above the junction of the Kulgam and Visho to the junction with the Jhelum.
- (7.) The Telbal and Dachhigam streams.
- (8.) The Kishanganga at Gurais from the Dâk Bungalow to Kanzalwan.
- (9.) The following waters on the Jhelum :—
  - (a) The Dalgate Pool.
  - (b) Shadipore from the junction of the Sindh to half a mile below Shadipore.

- (c) Sumbal from the bridge to half a mile below.
- (d) Baramulla do. do.
- (e) Sopore do. do.
- (f) Ningle from the Wolar to the boundary pillar ; and  
All the Tributaries of the above from the junction with the main stream to one mile up stream.

*N.B.*—All places on the above rivers that are defined under Notification 3 as Sanctuaries are closed.

3. *Prohibition of night fishing.* NOTIFICATION 6.—Under the provisions of Regulation 4 (2) His Highness the Maharaja in Council is pleased to notify that no fishing, whether under a license or not, shall be allowed in any of the Reserved Waters between the hours of 7 P.M. and 5 A.M. from October 15th to April 15th.

4. *Penalties.* SECTION 5 (*i*).—Whoever is found fishing in any Sanctuary shall be liable to be punished with imprisonment, with or without hard labour, for a term not exceeding two months, or with fine which may extend to Rs. 100 or both.

SECTION 5 (*ii*).—Whoever is found fishing in any “ Reserved or Protected Water” without a license as herein laid down ; or

SECTION 5 (*a*).—whoever uses dynamite or other explosive substance; or

SECTION 5 (b)—puts poison, lime or other noxious material into any water ; or

SECTION 5 (c)—whoever erects any fixed engine on the banks of or in any water with intent under any of the above headings to destroy or capture fish or uses for that purpose any instrument or net other than herein specified ; or

SECTION 5 (d)—in any Reserved Water shall be found fishing between the hours of 7 P.M and 5 A.M. from October 15th to April 15th ; or

SECTION 5 (e)—whosoever shall capture English trout in any form whatsoever ; or

SECTION 5 (f)—shall in any way contravene the provisions of this Regulation or of the Rules made thereunder for which no special punishment is provided, shall be liable—

To be punished on first conviction with imprisonment not exceeding one month or with fine which may extend to Rs 50 or both, and 5 (i) for a second or subsequent offence shall be liable to be punished with imprisonment for a period not exceeding two months and with fine which may extend to Rs. 100 or both, except that for a second or subsequent conviction under Section 5 (i) he will be liable to be punished with imprisonment for a period not exceeding six months or with fine which may extend to Rs. 500 or both ; and

If the offence is a continuing one, in addition to the above punishments, with a fine that may extend to Rs 16 for every day after the date on which he has been warned by any authority against a continuation of the offence.

N. B.—5 (g). In addition to the above, any fixed engine or other illegal article, as well as any fish there by capture shall be liable to be confiscated by the Darbar.

*Note.—5 (ii)* Imprisonment in the case of fishing in "Reserved Waters," may be either simple or rigorous.

5. *Licenses and method of obtaining.* DRAFT RULES, SECTION II ('i).—Licenses for fishing in "Reserved Waters" can be obtained from the Secretary, Game Preservation Department, Srinagar, the Motamid Darbar, and all the principal river-side Post Offices. The license will carry with it the privilege of fishing in "Protected Waters." A license thus granted will run for a period of one year commencing from the beginning of the Sambat year, except on the Poonch and Tangrote, where it will be from the beginning of the season, *viz.*, 15th of February.

6. *License, General.* SECTION II (8).—Licenses granted under these rules for the "Reserved Waters" shall be of general application and shall entitle the holder to fish in all the waters in the Jammu and Kashmir State, except in those for which under regulation 4 (ii) a special license is necessary.

7. *Special rules for fixing price of licenses in special waters.* REGULATION 4 (ii).—His Highness the Maharaja in Council may, by a Notification published in the State *Gazette* in this behalf, from time to time, declare that the capture of fish by any of the recognized modes of fishing be prohibited absolutely or subject to certain specified conditions within certain specified waters or fixed special fees for licenses in any water or waters, and may from time to time cancel or modify the same.

8. *Control of Reserved Water.* REGULATION 10.—The grant of licenses, appointment of watchers and all matters of control, whether financial or executive, in “Reserved Waters” shall be under the Secretary, Game Preservation Department.

By order,

H. R. WIGRAM, MAJOR,

*Secretary, Game Preservation Department.*

## MADRAS—NILGIRIS.

1. Unless with the sanction of Government, no person shall shoot at, wound or kill the females or immature males of any of the following animals within the limits of any reserved or rented forest or any fuel or fodder reserve, grazing-ground or area under special fire-protection :—

- |                    |                       |
|--------------------|-----------------------|
| (1) Bison or Gaur. | (4) Ibex.             |
| (2) Sambur.        | (5) Antelope.         |
| (3) Spotted-deer.  | (6) Four-horned deer. |

2. Unless with the sanction of Government, no person shall kill, wound or shoot at any mature male sambur or spotted-deer if it is hornless or if its horns are in velvet.

But any member of the Ootacamund Hunt Club may kill sambur brought to bay by the hounds whilst in the proper pursuit of hunting. This permission, however, will be subject to the control of the Collector of the Nilgiris, who will frame such precautionary measures as may be necessary.

3. No person shall kill, wound, shoot at or capture pea-hen, at any time throughout the year, or the hens of jungle-fowl between the 1st of January and 16th of September of each year. No person shall take the eggs of pea-hens or of jungle-hens at any time throughout the year.

4. No person shall hunt, kill, wound or shoot at any game as defined in Madras Act II of 1879, within any of the reserved or rented forests, fuel or fodder reserves, grazing-grounds or areas under special fire-protection comprised within the aforesaid limits, until he has obtained a license from the Collector of the Nilgiris.

5. Any person may obtain from the Collector a license to shoot game on payment of a fee of Rs. 30. The Collector may refuse to grant a license if the applicant has been convicted of an offence against the rules under the Forest Act relating to hunting, shooting and fishing or against the provisions of Act II of 1879, or for any other special reason to be stated in writing. The license shall not be transferable and shall be available only for the currency of the fiscal year to which it relates, whether it be taken out at the commencement or during the currency of the year.

Against any order issued by the Collector under the preceding clause an appeal shall lie to the Board of Revenue if filed within three months of the date of the orders appealed against.

The Collector of the Nilgiris shall however have authority at his discretion to reduce the payment for each license to Rs. 5 in the case of non-commissioned officers and soldiers of His Majesty's forces on proof to his satisfaction that the application for the license is for *bona-fide* sporting purposes.

6. The seasons during which licenses shall permit hunting or shooting of game in the reserved or rented forests or other areas specified in Rule 4 comprised within those limits shall be duly notified from time to time, by the Collector of the Nilgiris, and shall be clearly endorsed on the licenses.

7. The Collector may from time to time by notification in the District Gazette, declare all or any rivers, streams or lakes closed against fishing during any year or part of a year within any part of the aforesaid scheduled area and may similarly declare the whole or any part of any reserved or rented forest, fuel or fodder reserve, grazing-ground or area under special fire-protection within such scheduled area, closed against shooting or hunting for the whole or any part of any year. He may also prohibit within the same areas and for like periods the pursuit, killing or capture of any particular species of game and fish.

8. The poisoning of water, the dynamiting of fish, the setting of cruives or fixed engines for the capture or destruction of fish, the damming and baling

of water for the capture of fish, the netting of fish with nets, the meshes of which are under  $1\frac{1}{2}$  inches square, and the setting of traps and snares for the capture of game are absolutely forbidden anywhere within the limits of the scheduled area in which these rules are in force.

9. Any breach of the above rules within any area reserved under section 16 of Act V of 1882 will render the offender liable, on conviction before a magistrate, to the punishment provided by Section 21 of the Act and any breach of the above rules in any of the abovementioned areas, other than those reserved under Section 16 of the Act, will render the offender liable, on conviction before a magistrate, to imprisonment for a term which may extend to one month or to fine which may extend to Rs 200 or both.

The following notifications, issued under Act II of 1879, which still remain in force, are reproduced below:—

No. 41.—It is hereby notified under Section 5 of the Nilgiri Game and Fish Preservation Act of 1879, that with the view to protect acclimatized fish which may be believed to be in the undermentioned streams and lakes within the Nilgiri District and specified in the Schedule to the said Act, or which may be hereafter introduced therein, His Excellency the Governor-in-Council hereby prohibits the poisoning of the said streams and lakes and the throwing of

dynamite or any other deleterious matter therein, and the use of nets of a mesh below one inch and a half:—

*Streams and Lakes.*

1. Ootacamund lake and stream issuing therefrom.
2. Marlimund Reservoir in Ootacamund.
3. Lawrence Asylum lake and stream issuing therefrom.
4. Pykara river and its confluents from their sources down to the limits.
5. Avalanche or Kundah river and its confluents.
6. The Karteri and its confluents.

No. 42.—The Governor-in-Council hereby notifies under Section 5 of the Nilgiri Game and Fish Preservation Act (II of 1879, Madras) that from and after this date until further orders, the catching or killing of fish is prohibited in the Bay of the Ootacamund Lake at the foot of Awdry House. The limits within which fishing is prohibited as above will be demarcated by posts erected by the Nilgiri Game Association, one of which shall be placed below St. Thomas' Church and the other below Blackwood Cottage.

No. 43.—Under the provisions of Madras Act II of 1879 (an Act to provide for the protection of game and acclimatized fish in the District of the Nilgiris in the Madras Presidency) and in supersession of the notification published at page 70, Part I, of the *Fort St. George Gazette* of the 8th February 1881, His Excellency the Governor-in-Council hereby fixes the undermentioned periods as the seasons during which it shall not be lawful to shoot at, kill, capture, pursue, or sell, or attempt to kill, capture or sell large and small game, respectively, in the year 1891 and future years, *viz* :—

Large game (including all game other than hares and feathered game.)	{ The 1st of June to the 31st of October inclusive.
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Small game (hares and feathered game.)	{ The 15th of March to the 15th of September inclusive.
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C. A. GALTON,

*Secretary to Government.*

## MYSORE.

I. With reference to sub-section (2) of section 1 of the Mysore Game and Fish Preservation Regulation, II of 1901, it is hereby notified that the local area to which the Regulation extends shall comprise all the Districts in the Mysore State.

II. 1. In exercise of the powers conferred by the said Regulation, II of 1901, the Government of Mysore are further pleased to prescribe the following Rules, which shall come into force throughout the State on the 1st day of February 1902 :

Provided that, as regards State Forests, and lands specially protected under Section 35 of the Mysore Forest Regulation, XI of 1900, the operation of these rules shall be subject to the provisions of the said Forest Regulation and the rules, if any, framed thereunder.

2. The killing of monkeys, Brahman kites, parrots, and birds of song is absolutely prohibited :

Provided that any owner or occupier of land may kill (as well as capture or pursue) monkeys or parrots doing damage to fruit or other crop growing thereon, so far as the same may be necessary for the protection of the crop.

3. The killing or capture of birds with bright coloured plumage, of peacock, and (except with the special permission of Government) of antelope, is prohibited in all parts of the State for a period of three years from the coming of these rules into force.

4. The following acts in respect of any stream or lake (*i.e.*, tank) with a view to the capture or destruction of fish are forbidden, that is to say,—the poisoning of water, the placing or throwing of dynamite or other explosive or deleterious substance in water, the setting of fixed engines, and the use of nets having a mesh below two inches in the case of perennial streams and one inch in other cases.

5. Deputy Commissioners are authorised to declare, from time to time, by notification in Part II of the *Mysore Gazette*, all or any streams or lakes or any portion of the same to be closed against fishing, during any year or part of a year or during the spawning season and, in like manner, to prohibit for like period the capture or destruction of any particular species of fish therein.

*Explanation.*— The spawning season is as follows :—

as regards streams running to the west-coast—from 1st March to 31st August ;

as regards streams running to the east-coast—from 1st May to 30th November ;

in other cases—from 1st June to 31st December;—both days inclusive.

6. It shall not be lawful for any person to kill—

- (a) hares or any description of feathered game other than migratory birds (*i.e.*, other than duck and teal), between the 1st of March and the 1st of September in any year;
- (b) duck or teal, between the 1st of May and the 1st of October in any year;
- (c) the females, whether mature or otherwise, or the immature males of bison, sambhar, antelope, ibex or any variety of deer, at any time of the year; and
- (d) any other game between the 15th of June and the 15th of October in any year.

7. The taking out or destruction of the eggs of game birds is absolutely prohibited.

8. (a) No person shall sell or expose for sale any kind of game during the close season prescribed in these rules.

(b) Deputy Commissioners are authorized to prohibit the sale of fish in the neighbourhood of any stream or lake or portion thereof closed against fishing under Rule 5, or the sale in such neighbourhood of any species of fish of which the capture or killing may have been prohibited under that rule:

Provided that nothing herein shall apply to fish which the person selling attempting to sell the same can prove to have been caught in some place where its capture was not unlawful.

(c) It shall not be lawful for any person to sell game or fish at any time within the limits of any Municipality unless he shall have obtained a license in this behalf from the President or Vice-President of the Municipality on payment of a fee of 4 annas, such license being renewable at the end of every year on payment of a like fee.

9. Except to the extent permitted under section 12 of the Regulation, no person shall shoot at and kill game, or attempt so to do, without a license in the form appended to these rules, to be obtained from the Magistrate of the District on payment of a fee of five rupees. The District Magistrate shall be at liberty either to grant or to refuse to grant a license ; or, if satisfied that the conditions of a license have not been complied with, whether wholly or in part, to withdraw or cancel the same at any time.

10. A license granted under the preceding rule shall cover only the individual in whose name it was issued, and shall not be transferable to any other person. It shall be available only till the expiration of the Calendar year for which it was granted ; but it may be renewed, previous to such expiration, on payment of a second fee.

Such license shall, on payment of a further fee of twenty rupees, and on countersignature by the Conservator of Forests in the case of State Forest and lands specially protected under Section 35 of the Mysore Forest Regulation, and

in other cases by the Inspector-General of Police or other officer authorized in this regard by the Government, be valid for all the Districts in the State.

11. The power to arrest offenders under the circumstances referred to in Section 11 of the Regulation (*i. e.* where the offence is committed in the view of the person making the arrest and the offender on demand refuses to give his name and address or gives a name and address which there is reason to believe is false) may be exercised by the following persons, namely :—

all Forest Officers including Forest Guards ;

all Police Officers including Constables ; and

all officers of the Revenue Department (including land revenue, excise, sayer, &c.) of or above the rank of Patel or Shanbhog.

12. Any person holding a license granted under these rules shall be bound to produce the same when called upon to do so by a Magistrate or by any of the persons enumerated in the preceding rule.

13. Any breach of the above rules will render the offender liable on conviction to the penalty provided in Section 8 of the Regulation, namely, fine not exceeding one hundred rupees.

H. V. NANJUNDAYYA,  
Secy. to Govt., Genl. & Rev. Depts.

## THE PUNJAB.

—:o:—

*The 7th May 1891.*

No. 76.—*Notification.*—In supersession of Notification No. 208, dated 2nd May 1879, the Hon'ble the Lieutenant-Governor is pleased to prescribe the following Rules under clause (*i*) of Section 25 and clause (*j*) of Section 31 of Act VII of 1878 (The Indian Forest Act), regarding hunting, shooting, fishing, the poisoning of water, and the setting of traps and snares in Reserved and Protected Forests :—

## RULES.

I.—The setting of snares and traps, the use of small mesh nets to catch, or of dynamite to destroy fish, and the poisoning of water, are prohibited.

II.—The shooting or hawking of birds not entered in the list annexed to these rules, is prohibited throughout the year.

III.—Hunting or shooting with elephants and with large parties of beaters is prohibited.

IV.—Hunting or shooting between the 15th March and 15th September (both days inclusive in each year is prohibited.)

V.—The Conservator of Forests may declare and publicly notify any Reserved or Protected Forest or portion of such forest to be altogether closed against hunting, shooting and fishing for such periods as may be necessary when it is desirable in his judgment so to close such forest or portion of a forest.

VI.—Subject to the above restrictions, hunting or shooting is permitted, but nothing in this rule shall be taken to exempt any person from liability in respect of any offence by fire, injury to the forest or its produce or other offence punishable by Section 25, Act VII of 1878.

VII.—When not restricted by any existing right or lease of such right, fishing, otherwise than by nets, in any stream or other water, is permitted in any forest not being a forest closed under the provisions of Rule V.

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*List of birds referred to in Rule II which may be shot or hawked subject to  
the provisions of these rules.*

Number.	Name.	Number.	Name.
1	Pigeons of all kinds	...	Snipe.
2	Doves	...	Woodcock.
3	Sandgrouse of all kinds	...	Curlews.
4	Pea-fowl	...	Geese of all kinds,
5	Jungle-fowl	...	Teal of all kinds,
6	Pheasants of all kinds	...	Ducks of all kinds.
7	Partridges of all kinds	...	Kulan cranes.
8	Quails of all kinds	...	Swans.
9	Bustards and floricans and oubára	...	Hawks and eagles of all kinds.
10	Plovers	...	

## NOTICE.

*The 3rd October 1879.*

Under clause III of the Rules published by Notification No. 208 of 2nd May 1879, in the Gazette of 8th May 1879, Part I. the Conservator of Forests notifies that Blocks III and IV of the Chángá Mángá Plantation (being the portion of the forest to the South of the Bari Doab Canal) are altogether closed against hunting, shooting or fishing.

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## NOTICE.

*The 18th December 1889.*

Under Rule III of Punjab Government Notification No. 208, dated 2nd May 1879, the Conservator of Forests, Punjab, hereby declares that portion of the Margalla Reserves enclosed by walls on either side of the Murree and Rawalpindi Road, between the 14th and 16th miles, to be entirely closed to hunting and shooting.

## N O T I C E.

*The 22nd February 1883.*

Under Rule V of Punjab Government Notification No. 208, dated, 2nd May 1879, the Conservator of Forests, Punjab, hereby declares the in Lahore District. undermentioned Reserved Forests in the Lahore District to be entirely closed to hunting and shooting :—

- (a) The Shadera Reserved Forest on the right and left bank of the River Ravi, commonly known as the Shadera, Jugian and Mehmúd Buti Plantations.
  - (b) The Wazir Khan, Himat Singh, Chak Mahomed Bax and Khan Singh Reserved Forests,—North-West of the River Ravi, commonly known as the Sádhánwáli Plantation.
  - (c) The Jhok Reserved Forest along the right and left bank of River Ravi, commonly known as the Toria Jhok, Chung Sádhánwáli Plantation.
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## N O T I C E.

*The 4th May 1892.*

Under Rule V of Punjab Government Notification No. 76, dated 7th May 1891, the Conservator of Forests, Punjab, declares the following in Kangra District. reserves to be altogether closed to hunting and shooting :—

No.	Name of Reserve			Name of Tahsil	Name of District.
1	Dhamtál	...	...		
2	Khanni	...	...		
3	Tatal	...	...		
4	Chatril	...	...		
5	Mehdhár	...	...		
6	Batoi	...	...		
7	Swarka	...	...		
8	Bhali	...	...		
9	Dolba	...	...		Kāngra.
10	Ballah	...	...		
11	Soldah	...	...		
12	Tilli	...	...		
13	Darang	...	...		
14	Habrol	...	...		Dera.
15	Gumar	...	...		
16	Khandwár	...	...		
17	Lohara	...	...		
18	Panjal	...	...		Una.
19	Dharui	...	...		
20	Karanpore	...	...		
21	Bindraban	...	...		Hoshiárpur.
					Dasúya.

## NOTICE.

*The 23rd September 1892.*

Under Rule V. of Punjab Government Gazette Notification No. 76, dated  
 Blocks I and II 7th May 1891, the Conservator of Forests, Punjab, declares  
 of the Phillour Reserve. Blocks I and II of the Phillour Reserved Forest, which are  
 in immediate proximity to the Forest Bungalow, to be  
 altogether closed to hunting and shooting.

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## NOTIFICATION.

*The 1st November 1895.*

No. 2159.—Notification.—Under Rule V of Punjab Government, Revenue  
 and Agricultural Department, Notification No. 76, dated  
 Portion of Pabbi Reserve. 7th May 1891, the Conservator of Forests is pleased to declare  
 that the portion of the Pabbi Reserve situate within three  
 miles on either side of the Grand Trunk Road and marked by white-washed  
 cairns of stones at prominent points, is altogether closed to hunting and shooting  
 till further notice.

## NOTICE.

*The 14th April 1896.*

Under Rule V. of the Rules contained in Punjab Government Notification No 76, dated 7th May 1891, regarding hunting, shooting, &c., Kalesar Forest. in Reserved and Protected Forests in the Punjab, the Conservator of Forests hereby declares and publicly notifies that the Kalesar Reserved Forest in the Umballa District is closed against hunting and shooting till further notice.

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## NOTICE.

In supersession of the Notice of 28th April 1905 over the undersigned's signature on page 564, Part III of the Punjab Gazette, for 4th May 1905, the following revised notice is published :—

By Rule IV of Punjab Government Notification No. 76, of 7th May 1891, all Reserved Forests are closed to hunting and shooting from 15th March to 15th September annually.

Under Rule V of the above Notification, the Conservator of Forests hereby declares the portion of the Kallachitta Reserved Forest lying to the east of the

Mari-Attack Railway Line closed to hunting and shooting throughout the year for three years from this date.

After the expiry of the above term of three years, the portion of the above Forest thus closed will be opened (annually from the 16th September to 14th March for three successive years); and the portion lying west of the Mari-Attack Railway Line will be closed throughout the year for three successive years.

Thenceforth the two portions will be respectively opened and closed in rotation, each for a period of three years for the shooting season of 16th September to 14th March annually.

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### R A I P U R.

1. Sportsmen wishing to shoot in the Raipur Zemindaries must obtain permission beforehand from the Deputy Commissioner, Raipur, by whom alone licenses will be granted.

2. Applicants for a license will be required, before the license is granted to sign a promise to abide by the rules set forth below, and to report their bag, including wounded animals, to the Deputy Commissioner as soon as they leave their beat.

3. No license will be granted to cover more than 30 days' stay any one beat.
4. When the Deputy Commissioner grants a license, he will also grant a parwana for assistance to be given to the person or persons to whom the license is granted.
5. Applications for licenses and parwanas should reach the Deputy Commissioner, Raipur, not more than four months and not less than one month before the applicant proposes to reach the shooting ground.
6. "Sitting up" over water, salt-licks, or paths leading thereto, is not permitted.
7. No immature bulls or stags and no cows or hinds may be shot.
8. The following are the limits to head of buffalo, bison, and barasinga that may be shot :—(a) Per individual sportsman, two buffalo, two bison, one barasinga ; (b) Per party of three guns or less, four buffalo, four bison, two barasinga ; (c) Per beat, will be fixed annually by the Deputy Commissioner and may be less than in (a) or (b).

The number of these animals that may be shot will be stated in each license granted.

*Note.*—A buffalo or bison once wounded counts towards the limit whether brought to bag or not.

9. Subject to the ordinary etiquette among sportsmen, the fact that a shooting party has obtained permission to shoot in any beat will not debar a Government Officer travelling on duty from shooting therein in the ordinary course of his tour.

10. The Zemindaries have been divided up into the following beats. Only one party of not more than three guns will be allowed to shoot at one time in any beat :—(1) Phingesar and Bindra- Nawagarh, North Zemindaries ; and (2) Bindra-Nawagarh, South, both the first two beats being closed to shooting parties until further notice ; (3) Suarmar and Khariar, North ; (4) Khoriar, South ; (5) Kowriya and Deori ; (6) Dhondi-Lohara and Khujji ; (7) Sahaspur-Lohara, Gandai, and Thakurtola, Silheti, etc.

E. H. BLAKESLEY,  
*Second Secy. to the Chief Commr., C. P.*

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### S I N D.

The following are the regulations in force in various Municipalities in Sind :—

“ Wild bird ” means—Grey Partridge, Black (or Painted) Partridge, Quail, Painted Snipe, Wild Duck, Wild Goose, Peacock, Large White Heron, Lesser

White Heron or Smaller Egret, Little Black-billed White Heron or Little Egret, Cattle Egret, Common or Blue Heron, Pond Heron, Large Egret, Night Heron, Crested Grebe, Sand Grouse.

“Other animal of game” means (1) Hare, (2) Chinkara or Ravine Deer.

“The breeding season” means in the case of— Grey Partridge, Black (or Painted) Partridge, from 15th March to 15th September. Quail, from 1st May to 1st September. Painted Snipe, Wild Duck, Wild Goose, Peacock, from 1st April to 1st October. Large White Heron, Lesser White Heron or Smaller Egret, Little Black-billed White Heron, or Little Egret, Cattle Egret, Common or Blue Heron, Pond Heron, Large Egret, Night Heron, Crested Grebe, from 1st April to 1st November. Sand Grouse, from 1st May to 15th October. Hare, Chinkara or Ravine Deer, from 1st May to 1st October.

No one shall within the limits of the said Municipality possess or sell during its breeding season any wild bird or hare or ravine deer which has been recently killed or taken.

No one shall import into the said Municipality the plumage of any wild bird, the fur of any hare or the skin of chinkara or ravine deer during its breeding season.

A breach of these Rules shall be punished with fine which may extend—

- (a) In the case of a first offence, to (5) five rupees in respect of every wild bird or hare or ravine deer possessed or sold in breach of Rule II (a) or of which the plumage or fur or skin has been imported in breach of Rule II (b).
- (b) In the case of a subsequent offence, to ten rupees in respect of every such bird, or hare or ravine deer, or plumage or fur or skin.

A. CUMINE,  
*Commissioner in Sind.*

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### TRAVANCORE.

In this Regulation the word “game” shall include Bison (*Bos gaurus*), Sambhur (*Cervus unicolor*), Ibex (*Hemitragus hylocrius*), Mouse-deer (*Tragulus meminna*), Hares (*Lepus nigricollis*), Barking-deer (*Cervulus Muntjac*), Jungle-fowl (*Gallus sonnerati* and *galloperdix spadiceus*), Pea-fowl (*Pavo cristatus*), Quail (*Perdicula Asiatica*—*Micropoperdix erythrorhyncus*—*Coturnix coromandelica*—

*Excalfactoria chinensis* – *Turnix taiquaor* – *Turnix dussumieri* and *Coturnix communis*) and such other birds or animals as our Government may specify, from time to time, by Notification in the Gazette.

It shall not be lawful for any person to shoot at, kill, capture, pursue or sell, or attempt to kill, capture, or sell game during the periods specified in Schedule No. II appended hereto, or any female or immature male of bison (*Bos gaurus*) and ibex (*Hemitragus hylocrius*) at any time:

Provided that nothing in this Regulation contained shall preclude any person from defending his life from the attacks of wild animals, or proprietors or occupiers of land from adopting, on or within one-fourth of a mile of such land, such measures as may be necessary for the protection of life or of crops or produce growing thereon.

Any Government Officer, or any owner or manager of property specially authorized by our Government in this behalf, by Notification in the Gazette may require any person whom he finds committing any offence against this Regulation to give his name and address, and, if he refuses to give his name and address, or gives a name and address which such officer, owner, or manager has reason to believe to be false, he may be required by such officer, owner, or manager to accompany him to the nearest police-station.

*Explanation.*—A Government officer means and includes all servants of Government employed in the Revenue, Forest Cardamom, Police and Magisterial Departments.

Every person convicted before a Magistrate of any offence against this Regulation shall be liable, for the first offence, to a penalty not exceeding Rs. 50 and to the forfeiture to Government, at the discretion of the Magistrate, of the game taken, and of all guns, engines, implements, nets and dogs, used in or for the purpose of aiding the commission of such offence, and in default of payment of fine, to simple imprisonment for a period not exceeding one month, and for every second and subsequent offence, to a penalty not exceeding Rs. 100 and the same liability to forfeiture, and in default of payment, to simple imprisonment for a period not exceeding two months.

The provisions of the Code of Criminal Procedure shall apply to all proceedings under this Regulation.

All fees, fines and forfeitures realised under this Regulation shall be paid into the public treasury, but it shall be competent to the convicting Magistrate to award such portion of the fine, or the proceeds of the forfeiture as he may think fit, not exceeding one-half the amount of full fine authorized to be imposed by this Regulation in any case under this Regulation to the person or persons on whose information the conviction is obtained.

## SCHEDULE No. I.

*Northern boundary.*—From Payratumalay north-east along the boundary between Travancore and Coimbatore as far as the main stream of the Pambaur where the boundary turns southwards.

*Eastern boundary.*—From the main stream of the Pambaur along the boundary between Travancore and British India southwards as far as the pass from Mlapara to Shivagiri about 10 miles south of Kotahmalay.

*Southern boundary.*—From the Shivagiri pass on the east south-west to southernmost point of the Paradise plateau.

*Western boundary.*—From the southernmost point of the Paradise plateau northward along the edge of the cliffs to the Mourel plateau known as the Nullatani Para plateau, and round its western edge to the Mourel Estate, and so along the edge of the cliffs to the Granby Estate, the Arethu and 42nd mile cutting on the Peermade road ; thence north and including Amaruthumed ; thence along the cliffs including Colaholumed, and again northward along the edge of the plateau as far as Nagarampara, then eastward including Palcucammed to the junction of the Mothipara river with the Periyam ; thence to Munaur on the High Range and thence including all land above 4,000 feet and running west of Aneimudi along the western edge of Hamilton's plateau and across the valley to Payratumalay.

## SCHEDULE No. II.

Bison ( <i>Bos gaurus</i> )	}	From 31st May to 1st October.
Ibex ( <i>Hemitragus hylocrius</i> )		
Mouse-deer. ( <i>Tragulus meminna</i> )		
Sambhur ( <i>Cervus unicolor</i> )		
Barking-deer ( <i>Cervulus muntjac</i> )		
Feathered game and hares ( <i>Lepus negricollis</i> )		from 30th November to 1st April.

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## UNITED PROVINCES.

## FOREST DEPARTMENT.

*The 2nd August 1906.*

No. 441—XIV-31-1906.—In exercise of the powers conferred by section 25, clause (i), and section 75, clause (d), of the Indian Forest Act (VII of 1878), and in supersession of Notification No. <sup>391</sup>XIV—122-1904, dated the 28th June 1905, the Lieutenant-Governor is pleased to prescribe the following rules as to hunting, shooting, fishing, the poisoning of water, and the setting of traps or snares in the reserved forests in the United Provinces of Agra and Oudh:—

## UNDER SECTION 25 (I).

1. In these rules the word " hunting " includes tracking for the purpose of discovering the lie of wild animals.

2. The following acts are absolutely prohibited within a reserved forest : -

- (1) Poisoning or dynamiting rivers and other waters.
- (2) Driving or destroying birds or animals in the snow.
- (3) Poisoning carcasses of animals.

Under section 25 of the Indian Forest Act, the Deputy Conservator may sanction, subject to such conditions as may be necessary, the poisoning of carcasses of animals killed by wild dogs in order to destroy the latter.

(4) Spearing and running deer with dogs.

(5) Watching in the neighbourhood of water or salt-licks between sunset and sunrise to shoot animals other than carnivora resorting to such places.

(6) The erection of dams, weirs, or fixed traps, the diversion of streams for the purpose of catching fish, and the driving of fish.

3. The following acts are prohibited within a reserved forest except as provided below : -

(1) The setting of snares or traps except with the written permission of the Divisional Forest Officer.

(2) Hunting, shooting, or fishing, except—

- (a) by a person holding a permit granted by a Divisional Forest Officer;
- (b) by a person permitted by order of Government to hunt, shoot, or fish without a permit;
- (c) by a person authorized under the Elephant Preservation Act, 1879, to kill and capture wild elephants to the extent he is so authorized.
- (d) for the purpose of destroying carnivora in the immediate neighbourhood of habitations and cattle stations.

(3) The use of nets for the catching of fish, except—

- (a) that in the river Ganges, Jumna, and Sarda, nets of which the mesh is not smaller than  $1\frac{1}{2}$  inch square may be used;
- (b) that in other rivers and streams, drag, clap, and casting nets with a mesh not less than  $1\frac{1}{2}$  inch square may be used by right holders or persons holding permission in writing from the Divisional Forest Officer;
- (c) by permit holders for purposes of bait.

4. The Conservator may, with the previous sanction of Government, prescribe sanctuaries to be kept closed for a fixed number of years wherein all hunting and shooting shall be absolutely prohibited. This prohibition extends to all persons whether exempted or not.

5. The Conservator shall divide the forests into shooting areas and shall fix the number of any species that may be shot in any one year, in any one area, and restrict shooting so as to prevent the fixed limit being exceeded. This restriction applies to both permit holders and exempted officers.

6. Permits of the following descriptions to hunt, shoot, and fish may, subject to the control of the Conservator, be granted by a Divisional Forest Officer for a shooting area in his charge in the case of permits under form A, for a river or group of rivers in the case of permits under form B, for the reserved forests of the provinces in the case of permits under form C, and for the Naini Tal and Jaunsar forest division in the case of permits under form D :—

- (a) An ordinary permit in form A allowing the holder to hunt, shoot, and fish with rod and line subject to any restriction imposed under rules 4 and 5 above.
- (b) A permit in form B allowing the holder to fish with rod and line and to destroy others.
- (c) A permit in form C allowing the holder to shoot game birds and ground game.
- (d) A permit in form D allowing the holder to shoot in the hill forests of the Naini Tal and Jaunsar forest division subject to any restrictions imposed under rules 4 and 5 above.

7. (1) A permit in form A shall only be available for the person in whose name it is issued, and number of guns specified. Permits in form B, C and D. are personal, that is non-transferable.

(2) Every person to whom a permit has been granted shall, on the demand of any forest or police officer, produce it.

(3) A permit granted by a Divisional Forest Officer shall be valid only for the shooting area detailed therein, provided that wounded game may be pursued into any other shooting area.

(4) A permit may be cancelled at any time by the Conservator or Divisional Forest Officer if circumstances render it advisable.

(5) The permit holder is responsible that the members of the party observe the forest law and rules and the conditions of the permit. If the Divisional Forest Officer considers that any member of the party has committed a wilful breach of the said law, rules or conditions, he may cancel the permit: the whole party shall thereupon quit the forest immediately.

(6) Nothing in these rules shall be taken to exempt any person from liability in respect of any offence by fire injury to the forest or its produce or other offence punishable under section 25 of the Indian Forest Act (VII of 1878).

(7) The holder of a permit shall encamp only on such camping grounds as are entered in the permit or have been set apart by the forest authorities, or in places specially pointed out to him by a forest official.

(8). The holder of a permit shall not shoot or allow to be shot at, any animal or bird, the shooting of which is not permitted by the terms of the permit.

The Deputy Conservator, when granting a permit, may give the holder special permission to shoot other birds and small mammals required *bona fide* for purposes of natural history.

(9). The holders of the permit shall not shoot or allow to be shot more than the number of heads of any species entered in the permit.

(10). The holder of the permit may take into the forests only the number of retainers and followers and of elephants, dogs, or other animals entered by the Divisional Forest Officer in the permit.

(11). A charge of Re. 1 per diem for each elephant entered in the permit shall be paid (no separate charge shall be levied for fodder).

This charge and the permit fee shall be paid in advance. No charge shall be levied in the case of forest officers within their charges, or of person taking out an animal permit under rule 11, up to a limit of two elephants.

(12) On a permit-holder vacating the shooting area, of which he holds a permit, he shall return his permit to such official as may be named on it after entry on it of the number and species of all animals killed by him and his party. He shall also report any breach of rule 8 (3) exempted persons and persons taking out an animal permit (form A) under rule 11 shall furnish similar returns to the Divisional Forest Officer, shooting area by shooting area on the last day of every month, during which they may have been shooting in the forests, so that record of the number and species of animals killed may be kept up.

8. Permits in form A may be granted for specified time not exceeding 15 days, in form B and C for a period not exceeding one year, and in form D for a period not exceeding three months, on the following conditions, in addition to those entered in rule 7 above:—

(1) That the holder shall observe the close season for birds as entered in the permit.

(2) That the holder shall shoot only the game or edible birds entered in the permit, birds of prey, and vermin.

(3) That the holder shall not, without special permission of the Divisional Forest Officer, endorsed on the permit, shoot the females of wild sheep goat, or antelope, nor males without horns or with horns in velvet.

9. The following fees shall be paid for permits:--

Form A { By resident in India Rs. 10 each. By visitors } For a permit for  
from Europe and Foreign countries Rs. 25 each. } 15 days or less.

Form B.....As. 8 for 15 days or less, or Rs. 5 per annum.

Form C.....Rs. 5 for a period not exceeding one month, or Rs. 20 per an  
annual permit.

Form D.....Rs. 15 for a period not exceeding three months to cover big  
game shooting alone, or Rs. 25 to include game birds and ground  
game.

Not more than one permit in form A shall be granted for the same period  
in the same shooting area, and 15 days shall elapse between the grant of two  
successive permits in the same area.

10. A forest official shall be appointed to attend the permit-holder to  
show the boundaries of the shooting areas within which the permit is valid and  
to accompany the party if deemed advisable by the Divisional Forest Officer.

11. An annual permit may be granted by a Divisional Officer, subject to  
the control of the Conservator, to official and non-official residents of civil dis-  
tricts in which Government forests are situated, on an annual payment of  
Rs. 100; such permit-holders shall be entitled to hunt, shoot, and fish in the

forests of that districts only, subject to the same conditions as ordinary permit-holders and to be accompanied by two elephants free of charge, provided that—

- (i) they shall not shoot in areas in which a permit in form A is in force;
- (ii) should they wish to take in more than two elephants, they shall apply for a permit in form A and pay the fees, under the ordinary rules.

*Note.—The two elephants referred to above shall only be allowed in the forest during the period that the permit-holder is hunting, shooting, or fishing in these forests.*

12. (1) The following are exempt from the payment of fees being permitted to hunt, shoot, and fish on the same condition as permit-holders.

(a) Gazetted forest officers within their charges.

[For the purpose of this rule the Commissioner of Kumaon shall be deemed to be a Gazetted forest officer within the Kumaon civil division.]

(b) Within the limits of the Siwalik forest division British officers of the 2nd Gurkha Regiment, and non-commissioned officers and men holding passes issued by the Commanding Officer up to the 15th February in each year or such previous date as the conservator may declare the forests closed to ingress on account of danger from fire.

(2) In the Dehra Dun district within the areas leased to the Dehra Dun Fishing Association, its members are permitted to fish without permit.

13. Requests for permits shall be dealt with in order of priority of application. No such application shall, however, be valid if received more than three months before the permit is required. A register shall be maintained in the office of each Divisional Forest Officer showing for each class of permit :—

- (a) Date of receipt of application.
- (b) Date of application.
- (c) Orders passed.
- (d) Date of order.

14. No permit shall be refused merely on the grounds that a permit for a later date has already been sanctioned, but such permit shall only be granted for a period which does not infringe the interval established by the grant of a permit previously applied for.

Example,—“A” has obtained a permit from the 1st to the 25th April, “B” applies for a permit for 15 days from the 25th April, the prescribed interval of rest does not expire till the 30th April, “B” may therefore be offered a permit from the 1st to the 10th of May, provided that no permit has been granted in

May, previous to the 25th. In the case of the refusal to grant a permit, the grounds of refusal shall be at once communicated to the applicant, who is entitled to appeal to the Conservator, whose decision shall be final. A copy of the grounds of refusal shall be furnished at once to the Conservator, who is empowered, if he sees fit, to exercise powers of revision.

(Sd.) J. M. HOLMS,

*Chief Secretary.*

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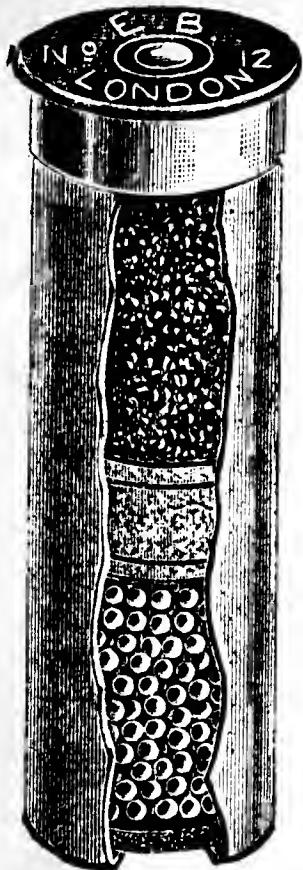
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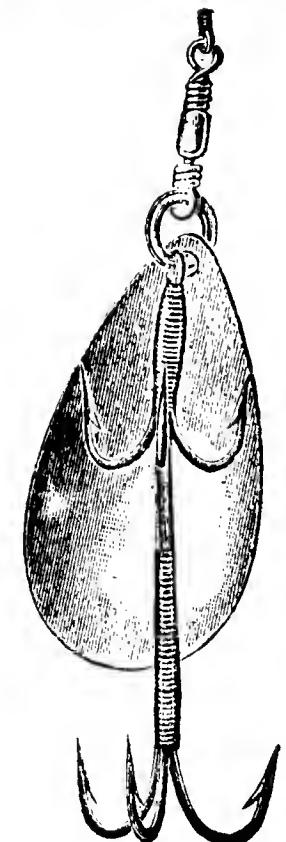
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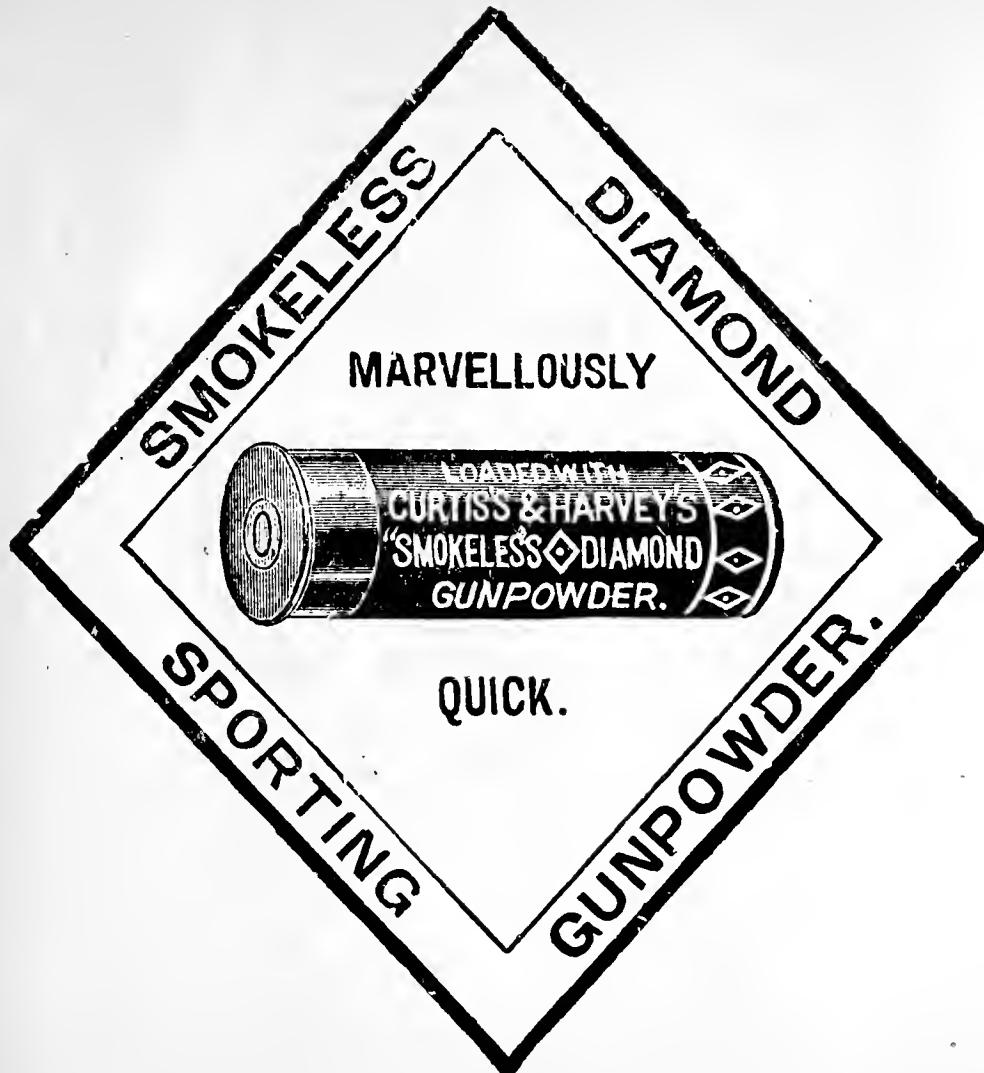
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